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Boston University

School of Education

Service Paper

A Comparative Analysis of Twenty-One Mathematics
Textbooks at the Eighth-Grade Level

Submitted by

Prakseda L. Gricius

In partial fulfillment of requirements
for the degree of Master in Education.

1949

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CHAPTER I

Introduction

Statement of the Purpose. It is the purpose of this study to analyze twenty-one mathematics textbooks, selected at random, but published, with few exceptions, within the last ten years. In no way will any attempt be made to condemn or to praise any given textbook. All material will be objective and as actually presented in the books selected for this analysis.

J. A. Clement¹ writes in his book, Manual for Analyzing and Selecting Textbooks, "Books should first be analyzed, appraised, and only then adopted or selected." The contents of this study will be strictly limited to the analysis alone. Clement² refers to the word "analysis" as "A clear, faithful, descriptive report of the actual data and facts embodied within textbooks representing different subject fields. Such an analysis will include as complete an observation as possible of all the varied items or aspects represented under certain designated master headings or categories." It is the writer's aim to keep within the boundaries of the above definition.

¹John A. Clement, Manual for Analyzing and Selecting Textbooks, the Garrand Press, Champaign, Illinois, 1942, p. 54.

²Ibid., p. 7.

Other Studies in the Field. In 1928, there was published, in manuscript form, a study¹ on analysis and evaluation of textbooks by Florence D. Fuller of the Department of Psychology and Educational Research in the Los Angeles public schools. This study by Miss Fuller is a pioneer in the field of scientific evaluation of textbooks. Thirty-seven teachers from various junior high schools were selected to work on various committees and assigned definite portions of work. It is interesting to note that the textbook which secured first place in the evaluation was voted practically unanimously by the committee. All this followed a careful analysis of each textbook under consideration, and the steps and procedures of the analysis are outlined in detail by Miss Fuller in her study. She states,² "The committee on Criteria of Content, comprised of five members, was appointed to determine what material would be included in a series of texts for junior high school mathematics. In order to do this, a careful study was made of the recent literature on junior high school mathematics, and of recent courses of study. The needs in this city and wishes of the teachers were considered. The material which seemed desirable for this system was then agreed upon and the proportion of the series of texts to be

¹Florence D. Fuller, Scientific Evaluation of Textbooks, An Experiment in Cooperative Evaluation of Junior High School Mathematics Texts. Houghton Mifflin Company, Boston, 1928.

²Op. cit., p. 2.

devoted to each phase of the work was estimated."

The Books Selected for This Analysis. The twenty-one books which are analyzed in this study were selected at random and are as follows:

1. Antoville, Henrietta D., Trube, Catherine M., and Jansen, William

Practical Mathematics, Book Three, Noble and Noble, New York, 1942, pp. vii-340.

2. Betz, William

Everyday Junior Mathematics, Book Two, Ginn and Company, Boston, 1945, pp. xii-484.

3. Bond, E. A., Reynolds, Rollo G., Shuster, Carl N. and West, Roscoe L.

Real Life Arithmetic, Step by Step Series, Grade Eight, Charles Scribner's Sons, New York, 1939, pp. xiv-272.

4. Brueckner, Leo J., Grossnickle, Foster E., and Merton, Elda L.

Arithmetic We Use, Grade Eight, the John C. Winston Company, Philadelphia, 1942, pp. v-312.

5. Brown, Joseph C., Mirick, Helen Cook, Guy, J. Freeman, and Eldredge, Albert C.

Champion Arithmetics, Stepped-Up Edition, Grade Eight, Row Peterson and Company, New York, 1937, pp. xvi-286.

6. Clapp, Frank L., Sleeper, Harriet Mahachek, and Ralya, Lillian Lamb

The Master Key Arithmetic, Grade Eight, Houghton Mifflin Company, Boston, 1937, pp. viii-278.

7. DeGroat, Harry DeW., and Young, William E.

Iroquois New Standard Arithmetics, Grade Eight, Iroquois Publishing Company, Syracuse, New York, 1940, pp. xiii-333.

8. Douglass, Harl R. and Kinney, Lucien B.
Junior Mathematics, Book II, Henry Holt and Company, New York, 1940, pp. v-439.
9. Douglass, Harl R. and Kinney, Lucien B.
Mathematics For Today, Book II, Henry Holt and Company, New York, 1940, pp. vii-447.
10. Edgerton, Edward I. and Carpenter, Perry A.
The New Mathematics, First Course. Allyn and Bacon Company, Boston, 1948, pp. x-452.
11. Georges, Joel S., Anderson, Robert F., and Morton, Robert L.
Mathematics through Experience, Book II, Silver Burdett Company, Boston, 1937, pp. vi-394-27.
12. Gillet, Harry O., Durell, Thomas J., Suelzt, Ben A., and Durrell, Fletcher
The New Trend Arithmetic, Enlarged Edition, Grade VIII, Charles E. Merrill Company, New York, 1942, pp. vi-378.
13. Hart, Walter W. and Jahn, Lora D.
Mathematics in Action, Book II. D. C. Heath and Company, Boston, 1939, pp. ix-374-54.
14. Knight, F. B., Studebaker, J. W., and Tate, Gladys
Mathematics and Life, Book II, Scott, Foresman and Company, New York, 1946, pp. 512.
15. Larry, Eva M. and Addelston, Lorraine W.
Mathematics At Your Service, Eighth Year - First Half, and Eighth Year - Second Half, Globe Book Company, New York, 1941, pp. viii-216; viii-223.
16. Lennes, N. J., Rogers, Don C. and Traver, L. R.
Learning Arithmetic, Grade Eight, Laidlaw Brothers, New York, 1942, pp. 288.

17. Morton, Robert Lee, Gray, Merle, Springstun, Elizabeth, and Schaaf, William L.

Making Sure of Arithmetic, Grade Eight, Silver Burdett Company, New York, 1946, pp. iii-348.

18. Overman, James

Junior-Life Mathematics, Book II, Lyons and Carnahan, New York, 1938, pp. x-388.

19. Schorling, Raleigh, Clark, John R., and Smith, Rolland R.

Fundamental Mathematics, Book II. World Book Company, New York, 1944, pp. xiii-402.

20. Strayer, George Drayton, and Upton, Clifford Brewster

Practical Junior Mathematics, Book II, American Book Company, Boston, 1935, pp. viii-416-xxix.

21. Wren, F. Lynwood and Osburn, W. J.

Functional Numbers, Number Readiness Series, Revised Edition, D. C. Heath and Company, Boston, 1942, pp. ix-326.

The Training and Experience of the Authors

1. Antoville, Henrietta D.¹

A practical classroom teacher in the Junior High School.

- Trube, Catherine M.²

A practical classroom teacher in the Junior High School.

¹Information supplied by Noble and Noble, Publishers, Inc.

²See note 1, above.

Jansen, William¹

Dr. Jansen, general editor of "Practical Mathematics," Book Three, is now Superintendent of Schools in the city of New York - the largest school system in the world. He has been a teacher, principal, assistant superintendent, and is now City Superintendent. He holds a Doctor's Degree in mathematics, and is author of several textbooks.

2. Betz, William²

Education: A.B. and A.M. from the University of Rochester.

Experience: Teacher of mathematics since graduation from college.

Head of Department and Vice-Principal, East High School, Rochester, New York.

Teacher, Summer Session, Teachers College, Columbia University, School of Education in Cleveland, and Cornell University. Experimental teaching in the classroom, Rochester, New York, for three years. His lessons were made the basis for the Rochester course of study. Since 1925 he has had wide-range contact with the curriculum building program of the Rochester schools. He has had complete charge of the formulation of the mathematical program, acting as chairman of the entire high school division. President, National Council of Teachers of Mathematics 1932-1934, Trustee of the Mathematical Association of America (the first choice of a secondary school man for that position in the history of the association).

Author: Junior Mathematics For Today

Algebra for Today

Many pamphlets, articles, and reports.

¹See note 1, p. 5.

²Information supplied by Ginn and Co.

3. Bond, Elden A.

Education: A.B., Washington, Seattle, 1934.
A.M., Columbia, 1935.

Experience: School psychologist, Mansfield, Ohio, 1935-1937. Head of Department of Mathematics, Western Washington College of Education, Bellingham, Washington. Assistant Professor of Education, Alabama, 1939. Instructor - Harvard, 1939. Summers, Instructor at Teachers College, Columbia, 1937-1938; Alabama, 1939; Harvard University, Cambridge, Massachusetts, 1941.

Reynolds, Rollo George

Education: A.B., Dartmouth; A.M., Columbia; Ph.D., 1923; L.L.D., American International College, 1938.

Experience: Juniata, 1910-1911. Schools, Vermont, 1911-1915. Assistant State Commissioner of Education, 1915-1919. Director, Bureau of Educational Service, Teachers College, Columbia, 1921-1928. Provost, Teachers College, Columbia, 1927-1928. Professor of Education, 1927. Principal, Horace Mann School, 1929. Narrator, "Ideas that Come True," National Broadcasting Company, 1939. Experimental School Administrator. Publicity for the public schools.

Shuster, Carl N.¹

Mr. Shuster is Head of the Department of Mathematics, New Jersey State Teachers College, at Trenton. He has taught courses in the teaching of arithmetic at Teachers College, Columbia University. He was a pioneer in the use of the project method and the activity program. His practical experience in farming, building construction, engineering and accounting, has given him unusual ability to impress upon the student the value of arithmetic in everyday life. He is co-author of Field Work in Mathematics.

¹Information supplied by Charles Scribner's Sons.

West, Roscoe Lambert

Education: Maine State Normal School, 1910; A.B.,
Harvard, 1914; Ed.M., 1923.

Experience: Superintendent of Schools, Farmington and Wilton, Maine, 1914-1916; Rockland and Rockport, 1916-1919; Needham, Massachusetts, 1919-1921. Director of Elementary Schools, Trenton, New Jersey, 1921-1926. Assistant State Commissioner of Education, 1926-1928. State Director Teacher Training, 1928-1930. President, New Jersey State Teachers College, 1930. Summer Instructor - Boston University Graduate School of Education, Harvard and New York Universities.

Author: International Civics Textbook

Arithmetic books.

4. Brueckner, Leo J.(ohn)

Education: Student at University of Michigan, 1909-1911. A.B., University of Iowa, 1913; A.M., 1915, Ph.D., 1919.

Experience: Superintendent of Schools, Lowden, Iowa, 1913-1914. Fellowship, University of Iowa, 1915-1916. Research Department, Detroit Public Schools, 1916. Member of faculty, Detroit Teachers College, 1916-1917 and 1919-1920. Assistant Dean, Detroit Teachers College, 1921-1926. Professor of Elementary Education, University of Minnesota since 1927. Director Instructional Research, Minneapolis Public Schools, 1923-1928. At the present time, Director of all education in the allied occupied zone of Germany.

Author: The Supervision of Elementary Subjects (with W. H. Burton and others) 1929.

Diagnostic and Remedial Teaching (with E. O. Melby) 1931.

Triangle Arithmetic Series; Triangle Arithmetic, Special State Edition; Diagnostic and Remedial Teachings, a professional book; Curriculum Tests in Arithmetic; Progress Tests in Arithmetic; Problem Solving Tests in Arithmetic; Diagnostic Tests and Practice Exercises in Arithmetic; New Curriculum Workbook in Arithmetic; Meaning and

Practice in Arithmetic; Practice in Essential Mathematics

Co-author: (with C. J. Anderson and G. O. Banting)
New Triangle Arithmetics (grades 3-8) 1935

New Curriculum Arithmetics (grades 3-8) 1933

New Curriculum Workbooks, 1936

Mathematics in Daily Life (grades 7-8) 1936

Arithmetic We Use (with F. E. Grossnickle and E. L. Merton) 1942

How to Make Arithmetic Meaningful (with F. E. Grossnickle) 1947

Author and co-author of many diagnostic and remedial tests in arithmetic and reading.

Grossnickle, Foster E.

Education: A.B., Blue Ridge College, 1917; A.M., University of Pennsylvania, 1919; Ph.D., Columbia, 1930.

Experience: Teacher, Nutley (New Jersey) High School, 1920-1925. New Jersey State Normal School, 1925-1929. State Teachers College, Jersey City, New Jersey since 1929. Summer Sessions: University of Maine, University of Syracuse, University of Minnesota, University of Texas, New York University. Member of Staff, Instructor Magazine, since 1942. Inventor of manipulative devices for concrete presentation of arithmetical concepts. Campaign manager for mayor of Nutley, New Jersey. Editor of Film Strips on Arithmetic.

Author: (with Brueckner and Merton) Arithmetic We Use, 1942

(with Stone and Mallory) Meaning and Practice in Arithmetic, 1943

High Arithmetic, 1930

How to Teach Arithmetic Meaningfully, 1947

Scripts for two films produced by Encyclopedia Britannica.

Merton, Elda L.¹

Education: Master's degree and other graduate studies in the field of elementary arithmetic.

Experience: Rural and city classroom teacher. Elementary supervisor.

Author: Study Projects in Reading

Triangle Arithmetic Series

Triangle Special State Edition

New Curriculum Arithmetic Series

Numbers Are Fun

New Curriculum Workbook

Triangle Workbooks

Merton-Mc Call Readers

5. Brown, Joseph C., Mirick, Helen Cook, Guy, J. Freeman and Eldredge, Albert C.²

All of the authors of "Champion Arithmetics," Stepped-Up Editions, were specialists in the field of arithmetic although some of them had risen to administrative positions. Dr. Brown, formerly superintendent of schools, Pelham, New York, Dr. Guy, formerly First Associate Superintendent of Schools, Pittsburgh, Pennsylvania, and Mr. Eldredge, formerly Principal, James Ford Rhodes School, Cleveland, Ohio, are all deceased. Dr. and Mrs. Mirick are still identified with Columbia University Teachers College.

¹Information supplied through the courtesy of John C. Winston Company.

²Information supplied by Row, Peterson and Company, Evanston, Illinois.

6. Clapp, Frank L.¹

Dr. Clapp was professor of education at the University of Wisconsin at the time the Master Key Arithmetic Series was written. He had done a great deal of research on number combinations. His work on the difficulty of number combinations has been the basis of many arithmetics since that time. Before going to the University of Wisconsin, Dr. Clapp had had a great deal of experience in public school teaching and administration.

Sleeper, Harriet²

Miss Sleeper was Supervisor of the Lower School at the Hartridge School in Plainfield, New Jersey. Her work with children in the lower grades made her a valuable collaborator with Dr. Clapp. Her knowledge of courses of study in both public and private schools made her a valuable author.

Mahachek, Joy³

Miss Mahachek was an associate professor of mathematics at State Teachers College in Indiana, Pennsylvania. She brought to the series workable methods of teaching. Besides her work in methods, she was of great help in knowing what various states required in their courses of study.

Ralya, Lillian Lamb⁴

Mrs. Ralya was an assistant in education in the University of Wisconsin. At the time, she was doing research work under Dr. Clapp. She was of great help in checking the results of the tremendous amount of research that Dr. Clapp conducted for this series. Without Mrs. Ralya much of the work that went into the series could not have been done.

¹Information supplied by Houghton Mifflin Company.

²See note 1, above.

³See note 1, above.

⁴See note 1, above.

7. DeGroat, Harry DeWitt

Education: Student, Owego Free Academy, 1886-1890;
A.B., A.M., Williams College, 1894; Ph.D.,
Albany State Teachers College, 1921.

Experience: Teacher of Science, Lima, Indiana, 1894-1895. Vice-principal, teacher of Latin, Gouverneur, New York, 1899-1904. Inspector of Schools for New York and Long Island for University of State of New York, 1904-1909. Assistant Chief of Examination Division, New York, State Education Department, in charge of teachers' licenses, 1909-1912. Principal, Cortland Normal School, 1912-1942. President, Cortland State Teachers College, 1942-1943; President Emeritus since 1943.

Co-author: Iroquois Arithmetics

Young, William Ernest

Education: A.B., Bates College, 1924; M.A., State University of Iowa, 1930.

Experience: Instructor in English and Speech, James Millikin University, Decatur, Illinois, 1924-1926. Instructor in Speech, University of Iowa, Iowa City, Iowa, 1926-1928. Graduate Assistant in Education, University of Iowa, 1929-1930. Supervisor of Elementary Education, Independent School District No. 27, Hibbing, Minnesota, 1930-1936. Assistant Professor of Education, Syracuse University, 1936-1938.

Co-author: New Standard Arithmetics (Grades 1-8)
1938-1943

Editor: The Social Studies in the Elementary Schools
Twelfth Yearbook

8. Douglass, Harl R.

Education: B.S., Missouri, 1915; A.M., 1921; Ph.D., Stanford, 1928.

Experience: Superintendent, City Schools, Missouri and Oregon, 1914-1919. Professor of Education, Oregon, 1919-1928. Lecturer, Secondary Education, Pennsylvania, 1928-1929. Professor, Minnesota, 1929-1938. Kenan Professor Secondary Education, and Chairman Division Teachers' Education, North Carolina, 1938-1940. Director, College of Education, Colorado, 1940-. Associate Professor, Stanford, 1923-1924. Consultant, American Youth Committee, American Council on Education, 1936.

Author: Standard Algebra Tests

Educational Measurements

Secondary School Organization

Methods of Teaching in High School

Kinney, Lucien B.

Education: B.S., 1923; M.A., 1925; Ph.D., 1931 (all from University of Minnesota); studied at University of Chicago, 1929-1930.

Experience: Member, Bureau of Educational Research, University of Minnesota, 1931-1932. Instructor in Education, Minnesota, 1931-1937. Head of Department of Mathematics and Acting Registrar, Oswego, New York State Teachers College, 1937-1940. Visiting Professor, Syracuse University, spring, 1940. Acting Dean, School of Education, Stanford, 1943-.

Author: Mathematics for Today, Books I and II (with H. R. Douglass), 1940

Everyday Mathematics (with H. R. Douglass), 1940

Junior Mathematics, Books I and II (with H. R. Douglass), 1940

9. Douglass, Harl R.¹

Kinney, Lucien B.²

10. Edgerton, Edward I.³

Carpenter, Perry A.⁴

Both authors are high school teachers and have had wide experience, especially as readers of the well known Regant's Examination papers.

11. Georges, Joel S.⁵

Dr. Georges has had experience for many years as a high school teacher of mathematics before becoming Chairman of the Department of Mathematics at Wright Junior College.

Anderson, Robert F.⁶

Dr. Anderson was formerly professor and head of the Department of Mathematics, State Teachers College, West Chester, Pennsylvania. He is the author, not only of Mathematics through Experience, but of a famous series of elementary arithmetics entitled The Anderson Arithmetics, which was in wide use twenty-five years ago.

Morton, Robert L.⁷

¹See pp. 12-13.

²See p. 13.

³Information supplied by Allyn and Bacon.

⁴See note 3, above.

⁵Information supplied by the Silver Burdett Company.

⁶See note 5, above.

⁷See pp. 19-20.

12. Gillet, Harry O.¹

Education: B.S., University of Chicago, 1901.

Experience: Teacher in Laboratory Schools, University of Chicago, 1900-1903. Teacher, University Elementary School, University of Chicago: 1903-1909. Assistant Principal, 1909-1910. Supervisor, 1910-1913. Principal, 1913-1945. Principal Emeritus since 1945. On teaching staff of University College (downtown college) from 1926. Taught arithmetic in Grades 4, 5, 6, 7 and 8 and supervised arithmetic teaching in Grades 1 to 6. Supervised the experimentation and other research in arithmetic in the University School. Member of the Committee of Seven of the Superintendents and Principals Association of Northern Illinois. Member of Central Association of Science and Mathematics Teachers, and secretary of the Association for four years. Member of the National Council of Teachers of Mathematics. Member of the American Association for the Advancement of Science. Member of American Educational Research Association. Elected on evidence of having conducted productive research in education.

Durell, Thomas J.

Education: A.B., Princeton, 1907; A.M., Columbia, 1930.

Experience: Principal Elementary School, Belleplain, New Jersey, 1919-1927. Superintendent Schools, Cape May County, 1927-. Member of National Education Association.

Author: Arithmetic textbooks.

Sueltz, Ben A.

Education: B.S., North Normal and Industrial School, South Dakota, 1923; A.M., Columbia, 1927; Ph.D., Columbia, 1933.

Experience: Principal of Schools, Trail City, South Dakota, 1923-1926. Teacher of mathematics and Associate Head of the Department, New York State Normal School, 1927.

¹Information supplied by the Charles E. Merrill Company.

Durell, Fletcher

Education: A.B., Princeton, 1879; Fellowship, 1881-1882; A.M., 1882; Ph.D., 1887; Leipzig, 1881.

Experience: Head of the Department of Mathematics, Pennington Seminary, New Jersey, 1879-1881. Professor of mathematics and astronomy, Dickinson, 1883-1895. Head of Department of Mathematics, Lawrenceville Schools, 1895-1925; Emeritus Head, 1925-. Association Teachers of Mathematics, New Jersey (president 19 years). Philadelphia Association Teachers of Mathematics (president 11 years).

Author: Mathematical textbooks: arithmetic, algebra, geometries, and trigonometry.

Fundamental Sources of Efficiency

Mathematical Adventures

13. Hart, Walter W.

Formerly Associate Professor of Mathematics, School of Education, University of Wisconsin.

Jahn, Lora D.

Adviser Junior High School Mathematics Committee. Vice-principal, Junior High School Number One, Trenton, New Jersey.

14. Knight, Frederic B.

Education: B.A., Boston University, 1913; M.A., Harvard, 1915; Ph.D., Columbia, 1920.

Experience: Teacher, High School, Milton, Massachusetts, 1913. Superintendent of Schools, Ipswich, 1914-1915; Danvers, 1916-1919. Professor of Education and Psychology, State University of Iowa, 1920-1937. Director, Division of Education and Applied Psychology, Purdue University, since 1937. Former General Editor, Education Series, Longmans, Green and Company. Director, Gary, Indiana, School Survey, 1940-1941; Richmond, Indiana, 1942; Parkersburg, West Virginia, 1944. Director, Indiana State Education Committee for War Veterans; Editorial Consultant, American Technical Society,

1946.

Author: Qualities Relating to Success in Teaching, 1922

Standard Mathematical Service, 1927

High School Efficiency Book, 1928

Mathematics and Life, 1937

Numerous other textbooks

Studebaker, John Ward

Education: A.B., Leander Clark College, 1910; A.M., Columbia, 1917; L.L.D., Duke University, 1934; L.L.D., Muhlenberg College, 1938; L.L.D., University of Maryland, 1945.

Experience: Earned way through college working as a union bricklayer. Principal, High School and coach of athletics, Guthrie Center, Iowa, 1910. Principal, Elementary and Junior High School, Mason City, Iowa, 1911-1914. Assistant Superintendent of Schools, Des Moines, 1914-1920; Superintendent from 1920. Appointed United States Commissioner of Education, May 18, 1934, and accepted the office on leave of absence from Iowa position; resigned the Des Moines superintendency February, 1937. Widely known for successful administrative abilities and knowledge of instructional techniques.

Author: "Plain Talk," "The American Way," and numerous textbooks.

Tate, Gladys¹

Education: M.A. in mathematics from the University of Michigan.

Experience: Teacher of Mathematics at the Gridley High School in Erie, Pennsylvania. Miss Tate is particularly well informed on problem-solving techniques at the upper-grade levels.

¹Information supplied by Scott, Foresman and Company.

15. Larry, Eva M.¹

Miss Larry has been Principal in the Junior High Schools of New York City for a number of years, with a major in mathematics.

Addelston, Lorraine W.²

Miss Addelston is Chairman of the Department of Mathematics in the Junior High Schools of New York City. She has been very active in professional associations and in activities related to the teaching of mathematics.

16. Lennes, Nels Johann

Education: B.S., University of Chicago, 1898; M.S., 1903; Ph.D., 1907.

Experience: Teacher, High School, Chicago, 1898-1907; Instructor, Mathematics, Massachusetts Institute of Technology, 1907-1910. Instructor, Mathematics, Columbia, 1910-1913. Professor of Mathematics and Head of the Department, University of Montana, 1913-1944.

Author: The Teaching of Arithmetic, 1924.

Survey of College Mathematics, 1926.

Whither Democracy? 1927.

Practice Sheets in Arithmetic, 1924-1927.

College Algebra, 1928.

Numerous other textbooks.

Rogers, Don Clifford

Education: A.B., 1916; A.M., 1921; Ph.D., 1923
(all from University of Iowa)

Experience: Superintendent of Schools, Grant, Iowa, 1916-1917. Superintendent of Schools, Lineville,

¹Information supplied by Globe Book Company, Inc.

²See note 1, above.

Iowa, 1917-1918. Superintendent of Schools, Osborn, Missouri, 1919. Superintendent of Schools, Nashua, Iowa, 1919-1920. Instructor in the College of Education, Extension Division, State University of Iowa, 1920-1923. Special Secretary, Chicago Principal's Club, 1923-1926. Principal of Smyth School, Chicago, 1926-1928. Director of Bureau of Research and Building Survey, Chicago Public Schools, 1928-1940. District Superintendent, 1941-1943. Assistant Superintendent, 1944-

Author: Chicago Speller Series

Rediscovering America

Co-author: Learning Arithmetic Series

Arithmetic Readiness Series

The Growth of Democracy

Traver, L. R.¹

Mr. Traver was engaged in public school work for approximately twenty years. During this time he taught rural, grammar, and high schools. He was also superintendent of a reasonably sized city, Salem, Oregon. From this position, he went to the Monmouth State Teachers College, Monmouth, Oregon, as Director of Training and Head of the Education Department. He was there a number of years and then went to Seattle, Washington, as an elementary school principal; he later became elementary supervisor. He then served in an editorial capacity and as a representative of the American Book Company, Lippincotts, Winston and Laidlaw Brothers. Mr. Traver has acted as advisor and co-author with Dr. Lennes.

17. Morton, Robert Lee

Education: B.S. in Education, Chicago University, 1913; student, Teachers College, Columbia, (summers, 1914-1915); A.M., Ohio State University, 1919; Ph.D., 1925.

¹Information supplied by Laidlaw Brothers, Publishers.

Experience: Teacher, Elementary School, Ohio, 1907-1909. Superintendent of Schools, Frankfort, Ohio, 1913-1918. Extension Lecturer, Ohio University, 1918-1920. Director, Extension Department, Ohio University, 1920-1921. Professor of Mathematics, College of Education, Ohio University, 1921-1936. Professor of Education since 1936. Summers: Professor of Education, Ohio State University, 1927-1930. Professor of Education, University of Washington, 1931.

Author and co-author: Numerous books and textbooks.

Gray, Merle¹

Merle Gray is Director of Elementary Education, Public Schools of Hammond, Indiana. She is a classroom teacher and supervisor of long experience. She has been vitally concerned about the way children learn and is unusually resourceful in developing techniques which help children learn. "It goes without saying that what helps children learn, helps the teacher teach."

Springstun, Elizabeth²

Elizabeth Springstun is an intermediate grade teacher and a Supervisor of Student Teaching in the Laboratory School of the National College of Education, Evanston, Illinois. She has proved resourceful in the classroom and in the preparation of instructional materials, in helping children learn to understand and become skillful in the use of arithmetic.

Schaaf, William Leonard

Education: G.S., Columbia College, 1919. M.A., Columbia University, 1920. Ph.D., Teachers College, Columbia University, 1928.

¹Information supplied by Silver Burdett Company

²See note 1, above.

Experience: Instructor in Mathematics, City College, New York, 1924-1932. Instructor in Mathematics, Townsend Harris High School, . Instructor in Education, Brooklyn College, 1932-1935. Assistant Professor of Education, Brooklyn College, Brooklyn, New York, 1935-

Member: National Council of Teachers of Mathematics

Author: Mathematics for Junior High School, 1931

Essentials of Business Arithmetic, 1936

Bibliography of Mathematics Education, 1941

Mathematics for Mechanics, 1942

Ph.D. Dissertation - A Course for Teachers of Junior High School Mathematics

18. Overman, James R.

Education: A.B., Indiana, 1909; A.M., Columbia, 1914; Ph.D., Michigan, 1930.

Experience: Principal, High School, Freelandville, Indiana, 1909-1911. Head of Department of Mathematics, Kokomo, 1911. Instructor, Shortridge High School, Indianapolis, 1912. Horace Mann School, Teachers College, Columbia, 1912-1914. Head of Department of Mathematics, Bowling Green State University, 1914; Dean, College of Liberal Arts, 1930- . Summer Instructor; Pennsylvania, 1914; Michigan, 1939. National Education Association. Council of Teachers of Mathematics.

19. Schorling, Raleigh

Education: Indiana State Normal School; A.B., Michigan, 1911; A.M., Chicago, 1914; Ph.D., Columbia, 1925.

Experience: Teacher, Indiana, 1904-1907; Principal of high school, 1907-1908; Lincoln School, Teachers College, Columbia, 1917-1922. Organizer, University High School, Michigan, 1922; Principal, 1922-1926; Professor of Education, School of Education, 1926- . Supervisor, Directed Teaching and Instruction Workshop, Michigan, 1940. National Education Association. Association of School

Administration. Council of Teachers of Mathematics; (president, 1923-1925). Supervisor of Student Teaching. Now teaching at University High School, Ann Arbor, Michigan.

Author: Fundamental Mathematics, Books One and Two, 1944

Modern School Algebra, First and Second Year, 1942

Mathematics in Life, 1946

Mathematics for the Consumer, 1947

A Bill of Rights for Teachers, 1947

Student Teaching, 1947

Clark, Dr. John R.

Education: A.B., Indiana, 1912; Ph.D., Columbia, 1925

Experience: Teacher, Central High School, Springfield, Massachusetts, 1915-1921; Classical High School, Newton, 1921-1925. Assistant Professor of Mathematics, Clark, Massachusetts, 1925-1927. Head of Department, Central High School, Springfield, Massachusetts, 1927-1931. Instructor, Teachers College, Columbia, 1929. Council of Teachers of Mathematics (Director).

Author: Geometry

Teaching Secondary Mathematics

Secondary Mathematics Textbooks

20. Strayer, George Drayton

Education: A.B., Hopkins, 1903; Ph.D., Columbia, 1905; D.Lit., 1929; L.L.D., College of William and Mary, 1925; L.L.D., Bucknell, 1930.

Experience: Instructor, Elementary Education, Teachers College, Columbia, 1895-1907; Adjunct Professor, 1907-1910; Professor of Educational Administration, 1910. Member Board of Consultants, National Survey, School Finance, 1931. Director of Survey: Atlanta, Georgia, 1920-1921; Baltimore, Maryland, 1921-1922; Providence, Rhode Island, 1923-1924; Florida, 1927-1929; Missouri, 1929. Director High School System Survey, Chicago, 1931-1932. Survey of Schools: Yonkers, New York, 1934; Hartford, Connecticut, 1936-1938; St. Louis, Missouri, 1938-1939; Pittsburgh, Pennsylvania, 1940. Chairman, National Advisory Committee. Director, National Educational Finance Inquiry. Educational Policies Commission. Director of Studies, Governor's Committee on Costs of Public Education, New York. Chairman, Mayor's Committee on City and State Relationships in Financing of Public Education, New York, 1939-1940. Member, American Council of Education. Home Director, Y.M.C.A. Overseas Educational Committee. Director, School Campaign for National War Savings Committee, U. S. Treasury Department

Author: Financing of Public Education

Surveys of School Systems

The Teaching Process

Retardation and Elimination in Schools and Colleges

Educational Administration

School Building Problems

Arithmetic and mathematics texts

Upton, Dr. Clifford Brewster¹

Teacher in both elementary and secondary schools. Professor and then Head of the Department of Mathematics in Teachers College at Columbia.

Ph.D. from Columbia University. A part of his assignment was supervision of the work in the Horace Mann School, Demonstration School of the Teachers College.

¹Information supplied by American Book Company, Boston.

21. Wren, F. Lynwood

Education: A.B., University of the South, 1915; Hopkins, 1917, 1921; General Education Board Fellowship, Peabody College, 1924-1925; A.M., 1925; General Education Board Fellowship, Chicago, 1925-1927; Ph.D., 1930.

Experience: Principal and teacher, mathematics and French, City High School, Martin, Tennessee, 1915-1917. Teacher mathematics and languages, McFerrin School, 1919-1921. Mathematics, Chattanooga, 1921-1924. Associate Professor, teaching of mathematics, Peabody College, 1927-1930.

Osburne, Dr. Worth J.¹

Education: A.B., Central College, Missouri, 1903; A.M., Vanderbilt, 1904; B.S., Missouri, 1911; Ph.D., Columbia, 1921.

Experience: Teacher, Academy Central College, Missouri, 1905-1908. Superintendent at Schools, Cartersville, Missouri, 1908-1914. Teacher, Northwest, Missouri State Teachers College, 1915-1919. Director, Tests and Measurements, Department of Public Instruction, Wisconsin, 1920-1928. Research, State Department of Education, Ohio, 1928-1933; Ohio State, 1934-1935; New York State Teachers College, Buffalo, 1935-1936. Professor of Education, Washington (Seattle), 1936.

Author: Educational Administration and Research

Corrective Arithmetic

Foreign Criticism of American Education

Overlappings and Omissions in Courses of Study

¹ Educational Editor for Functional Numbers by F. Lynwood Wren.

The Objectives and Aims of the Author or Authors:- the contents of a book reflects the thinking, the planning, the philosophy, the aims and purposes of the writer. It is important, therefore, to learn the principles outlined by the authors in the analysis of any text book. These principles, or objectives, or aims are usually stated at the beginning of the book, namely, in the foreword, preface, or the introduction. After a careful study of these sources by the writer the following information was recorded with respect to the purposes and aims of the authors.

1. Antoville, Henrietta D., Trube, Catherine M.¹ and Jansen, William.

Real-life situations have been selected by the authors in their various applications, throughout the text book.

"The underlying purpose in studying mathematics is its direct usefulness in life in terms of its facts, methods, principles, and processes."

"Throughout the series there is a progressive development of skills that may be applied to the mathematical situations met by the average person in his home, school, business, and community."

Background material is presented to the pupils at the beginning of each new topic. "Only those principles are em-

¹Op. cit., pp. iii-vi.

phasized which have inherent practical value or serve as a preparation for further work in mathematics."

The authors attempt to follow a mathematical sequence, and use a vocabulary that can be easily comprehended by the pupils. The problems are graded from the very simple to the difficult, thus providing for individual differences. New terms are carefully defined in the footnotes.

2. Betz, William¹

"The mathematical program of Everyday Junior Mathematics is based on long-continued experimental testing in many classes of numerous schools. Moreover, it reflects the most authoritative developments in educational theory, in the psychology of learning, and in the domain of curriculum construction."

The outstanding features are:²

1. Emphasis on essentials.
2. Significant applications.
3. Concepts and principles developed in planned stages.
4. Unique motivating discussions.
5. Complete reconditioning program in arithmetic in each volume.
6. Full provision for individual differences.

¹Op. cit., pp. v-vi.

²Betz, William, "Everyday Junior Mathematics," a pamphlet by Ginn and Company.

7. Skillful employment of visual and manual aids.
 8. Excellent training in problem solving; ample drill.
 9. Complete testing programs incorporated in the text.
3. Bond, E. A., Reynolds, Rollo G., Shuster, Carl N., and West, Roscoe L.¹

Real Life Arithmetics have grown out of the authors' conviction "that the subject of arithmetic is of ever-increasing social significance; that the young learner should be made to realize its usefulness in his daily experience; that the content of arithmetic should be made a contribution to other subjects in the curriculum; that the time for the introduction of various topics should be geared to the maturity of the pupils; that the teaching program provided should be by easy steps with a view to mastery; that thinking in arithmetic should at all times be emphasized."

This text book is a continuation of other books in the series. Likewise, the authors continue their emphasis on arithmetic as applied in every day, real life situations. "The central theme of the book is the way people use their money to provide for themselves such things as goods, protection against emergencies, community services, and the other desires of life. Consequently, much attention is given to investment of money, insurance, taxes, and installment buying."

¹Op. cit., pp. iii-viii.

A two-fold purpose is followed in the social applications of arithmetic, namely:

1. To use material that comes from the activities of children.
2. To enrich the experiences of children by showing the mathematical content existent in ordinary life situations.

To keep pace with the present trends a great deal of emphasis is placed on graphic representation. "Line, bar, circle, and pictorial graphs are employed in suitable situations."

A correlation with other school subjects is attempted, and in particular with elementary school science.

4. Brueckner, Leo J., Grossnickle, Foster E., and Merton, Elda L.¹

The basic plan of this Arithmetic We Use series "recognizes two major phases of the subject; namely, (1) the mathematical phase, and, (2) the social phase. The purpose of the mathematical phase is to teach the nature of the number system. The purpose of the social phase is to help the pupil to understand and to utilize effectively the quantitative procedures that he will need daily in the social order of which he is a part." Therefore, the basis of instruction in this text book for Grade Eight is (1) the number system and (2) its social significance.

¹Op. cit., pp. iv-v.

The authors have graded the subject matter based upon scientific research. "To insure successful growth in arithmetic power the authors have carefully considered the findings of important investigations of grade placement of arithmetic topics, and have made extensive surveys of their own to determine the most satisfactory points at which to present the various elements of the work. As a result, the work of each grade has been considerably simplified and the teaching load greatly reduced. This scientific gradation of subject matter means that topics are spaced through several grades rather than bunched in any one particular grade."

5. Brown, Joseph C., Mirick, Helen Cook, Guy, J. Freeman,
and Eldridge, Albert C.¹

The authors of Champion Arithmetics, Stepped-Up Edition, without much adieu, state their aims in the Preface as:

1. To make arithmetic easier and more interesting for all children.
2. To guide teachers in the best methods.
3. To provide ample material of the right kind.
4. To meet the standards of sanely progressive superintendents, supervisors, and teachers.
5. To develop in the child the ability to do quantitative thinking.

The purpose of this Stepped-Up Edition has been the outgrowth of recent educational trends and research studies in

¹Op. cit., pp. iii-iv.

the teaching of arithmetic. The major differences between this text and the original Champion Arithmetics as listed by the authors are:

1. The teaching of measurements has been expanded and reorganized.
2. The making and interpretation of graphs has been expanded.
3. The work in equations has been reorganized with some expansion.
4. Installment buying which has been stepped-up from Grade Seven is now included in Grade Eight.

6. Clapp, Frank L., Sleeper, Harriet, Mahachek, Joy, and Ralya, Lilliam Lamb.¹

The general purpose, as set forth in the Master Key Arithmetic, is "an emphasis on the understanding by pupils of number relationships, of the relationships among processes, and of basic principles as guides in the solving of problems."

The authors aim to teach pupils how to learn arithmetic, how to analyze their own work, how to find their own difficulties, how to form their own generalizations, how to measure their own progress, and how to use their own experiences for the study of new topics.

Individual differences are provided for through individualized practice exercises and through individualized study exercises.

¹ Op. cit., pp. iii-iv.

7. DeGroat, Harry DeWitt, and Young, William E.¹

As a result of an exhaustive study made on the findings of authoritative modern researchers in arithmetic and of new courses of study of recognized value, the series Iroquois New Standard Arithmetics was written. Based on this study, the following aims were set up by the authors:

1. Certain basic topics taught in the grades must be stepped-up.
2. A longer span of time for mastery of the fundamentals must be provided.
3. Various topics must be graded to accord with their usefulness to the child.
4. Enriching materials must be provided in accordance with the special recommendations of leading courses of study.

The specific aims for the eighth grade are:

1. The presentation of the tools of arithmetic that the pupil needs in modern life must be completed.
2. Manipulation skill must be further maintained and developed.
3. The pupil must be acquainted with a broader range of social situations to which arithmetic tools are applied.

8. Douglass, Harl R., and Kinney, Lucien B.²

As an instrument for intelligent thinking and communication in our modern world today, the authors deem it a

¹Op. cit., pp. iii-vii.

²Op. cit., pp. iii-v.

necessity for every individual to equip himself with the ability to use simple mathematics. "Whether it is a language of its own or a part of another language, it is an integral part of our means of communication.

Today we are besieged on all sides with accounts of social, political, economic, scientific, and recreational activities. All demand at least a general understanding of mathematical concepts. Mathematical illiteracy today is as serious a handicap as the inability to read and write."

The authors further continue to say that "Closer to our own interest than the understanding of world or public problems, is the solving of our personal problems." Not only mathematicians but all logical people know that, whatever the problem, there are certain steps which are best used for its solution:

1. Understand what the problem is.
2. Organize the given facts, weeding out the useless data.
3. Solve by logical applications of acquired knowledge.
4. Check the answer.

This, then, is a basis for problem solving around which Junior Mathematics is written, and the method is continually stressed. Its use is not limited to figures, but is of value in solving any problem.

The major concepts stressed by the authors are:

1. The application of fundamental processes involving common and decimal fractions and mixed numbers.
2. The applications of percentage and skill in computations, relative to interest, discounts, and banking.
3. Linear and surface measures of common geometric figures.
4. Increased reading and making various kinds of graphs.
5. The idea and procedure of balance, symmetry, and proportion.

9. Douglass, Harl R., and Kinney, Lucien B.¹

Once again the reader is reminded of the inescapable presence of mathematics in every day life situations and the need for comprehension and solution of the various problems requiring a knowledge of basic mathematical concepts and skills.

The following procedures and concepts are outlined by the authors as stressed in their textbooks:

1. The applications of fundamental processes involving common and decimal fractions and mixed numbers.
2. The applications of percentage and skill in computations relative to interest, discount and banking.
3. Linear and surface measures of all common geometric figures.
4. Increased reading and making various kinds of graphs.
5. The idea and procedure of balance, symmetry, and

¹Op. cit., pp. iii-v.

proportion.

"New fields of application include problems of wholesalers and retailers, the consumer, the bank, transportation, and numerous vocational users of mathematics. There are all supplemented by the development of attitudes and appreciations. Individual differences are provided for by the Diagnostic and Remedial Program, which permits the average pupil who needs practice to review the fundamentals; while the superior pupil finds challenge in the starred sections and problems, which require originality in analysis and enterprise."

10. Edgerton, Edward I., and Carpenter, Perry A.¹

Emphasis is placed by the authors upon the practical everyday utility of mathematics. Each unit is preceded by a page of "key thoughts" which describe in part the nature of the work to be studied in the unit.

With respect to the problems which are used in the New Mathematics, the authors say, "The problems are practical and appropriate because they are based on everyday classroom needs. They are validated by the long teaching experience of the authors. Furthermore, literally thousands of papers have passed through the authors' hands, as examiners for the Regents of the State of New York, thus affording them an excellent cross-section of varying classroom conditions."

¹

Op. cit., pp. iii-iv.

It is the aim of this text "to include and apply the seven cardinal features of this series: interest, simplicity, attractiveness, logical sequence, careful gradation, practical applications, and thoroughness."

Further objectives, as stated in the foreword, are as follows:

1. Continual emphasis on the importance of estimating.
2. The plan for an Improvement Record Book in which the pupil constantly tests his speed and accuracy, of which he keeps a cumulative record.
3. The treatment of graphs to meet the need for visualizing ratios.
4. A large number of standard and other texts to help the pupil make frequent checks on his progress.
5. Constant but varied drill through practical applications of the facts and principles learned.
6. Simplicity and naturalness in discussion.
7. Interest, compelling headings, section titles, and picture captions.
8. Experimental problems which lead the pupil to discover for himself many of the major principles.
9. Varied pictures, many from pupil life, which vitalize the subject and brighten the book.

11. Georges, Joel S., Anderson, Robert F., and Morton, Robert L.¹

Mathematics through Experience has been written based on the results of the authors' own experiences and investigation of the problems related to the teaching of mathematics, and, from the study of findings and recommendations of others

¹Op. cit., pp. ii-iii.

in the field.

The general aims and objectives are expressed in the story of each unit - in terms of the specific aims of each unit of instruction. The main purpose of the authors is, as stated in the preface: "To present mathematics as a method of thinking to be acquired and used by the student. The mathematical experiences provided in the book have been designed to lead the student to acquire habits of reflective thinking and to gain mathematical ability."

Individual differences have been provided for by the grading of exercises into three groups. For the evaluation of instruction and mastery each unit includes tests which will facilitate the elimination of any student weakness in performing the fundamental operations of arithmetic.

12. Gillet, Harry O., Durell, Thomas J., Sueltz, Ben A., and Durell, Fletcher¹

In revising their text, the authors have attempted to keep it in line with the newest trends in arithmetical teaching in accordance with the latest scientific research and the procedures that have met, and are meeting with demonstrated success in the classroom. Their aims are stated thus:

1. An adjusted grade placement of topics in terms of the mental maturity of pupils.

¹ Op. cit., pp. iii-iv.

2. A longer time span between the easier and the harder parts of a process.
3. A richer experiential background.
4. The analysis of each topic in accord with the psychology of learning.
5. A practical and consistent program for cultivating ability to solve verbal problems.
6. An insistence that the arithmetic of the school shall not be isolated from life out of school.

For the improvement and retention of skills in the fundamental operations, diagnostic tests are provided, as is remedial practice material for those who are found to be weak in some of the fundamental processes. "The exercises for practice and assimilation are graded to provide a minimum course, an average course, and an enriched course."

Problem Solving is given an important place in the structure of the text, and problems related to every kind of everyday application are included in the text.

13. Hart, Walter W. and Jahn, Lora D.¹

Mathematics in Action, Book II, is more or less a continuation of Book I. Because it reviews the fundamentals of earlier grades, Book II can be studied independently of Book I.

The central purpose of the authors is "to convey to pupils understanding and appreciation of the role of mathematics in many phases of modern life, and to develop some

¹Op. cit., iii-iv.

degree of skill in solving the real problems that arise. Fundamental skills are treated as means of solving problems."

14. Knight, Frederic B., Studebaker, John Ward, and Tate, Gladys.¹

The new edition of Mathematics and Life contains no preface or introduction where usually are found statements of the author's aims and purposes. However, in the appendix objectives for quantitative thinking are listed which seem to indicate the emphasis the authors wish to impart in their text book.

1. Understanding of measurement information and the ability to apply it.
2. Insight into the meaning of numbers and the computational processes.
3. Skill in mental computation and the use of computational short cuts.
4. The habit of sensing and understanding a problem situation before attempting the solution.
5. A sense of money relationships and the ability to handle money situations.
6. The ability to visualize spatial relationships.
7. The ability to detect fallacies and absurdities.
8. Awareness of quantitative aspects of the environment.
9. General ingenuity and resourcefulness in meeting everyday arithmetic situations.

¹
Op. cit., p. 511.

15. Larry, Eva M. and Addelston, Lorraine W.¹

Mathematics At Your Service has been written in two sections - namely, Eighth-Year - First Half, and Eighth-Year - Second Half. In both parts the authors have tried to serve both the teacher and the child.

"The exercises in manipulation of fundamentals are so organized that the teacher may set up a diagnostic-remedial program with a minimum of effort. The materials for this program are extended beyond those of the seventh year texts, but include those materials, too; this is done so that the teacher will have the materials for the backward child who needs the very elementary drills, and, simultaneously, have materials for the child who works rapidly, and who would otherwise 'run out of' drills."

In serving the child, "the comic strip family enlivens these pages, and an effort is made to kindle the imagination and to appeal to the sense of humor. There is more reading material than in the more usual arithmetic text, and this makes for cultural rather than tool interest."

The authors have so planned their material, that each child can work independently of other pupils. "The child may catch up on lessons missed or he may read ahead of his classmates."

To meet individual differences in ability, the problems

¹
Op. cit., pp. iii-iv.

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The authors have so planned their material, that each child can work independently of other pupils. "The child may catch up on lessons missed or he may read ahead of his classmates."

To meet individual differences in ability, the programs

are graded. "No child is forgotten in the organization of the material."

The language aspect is stressed through the units of algebra. "Foundation is laid for subsequent concepts by establishing a breadth of understanding and by correlating with English grammar. The function concept plays an important role, as algebra, arithmetic and geometry are fused."

In the second half of the text book:

1. A definite attempt is made to stimulate the reading of mathematics by correlation with story and history.
2. The problems are selected to meet a wide range of difficulty.
3. More formal treatment is given the new topic of geometry, so as to achieve a gradual introduction to demonstrative geometry.
4. The treatment of algebra as a language is continued and extended.
5. In Unit X, there is an organized review of problems.
6. Unit XI provides a variation in the remedial material in fundamentals already appearing in the first three texts.

"The general aim has been to carry along the continuous mathematical thread extending the level of difficulty from grade to grade and providing a broadening apperceptive basis for the work of the ninth and tenth years."

16. Lennes, Nels Johann, Rogers, Don C., and Traver, L. R.¹

Learning Arithmetic has as its chief objective the development of the pupil's understanding and skill in the fundamental operations and in problem solving.

The subject matter has been scientifically constructed and graded. Each unit covers approximately two weeks' work. Emphasis is placed on:

1. Accuracy in computation rather than upon speed.
2. Practice in the fundamental operations and in problem solving.

The authors make two recommendations to the teacher.

(1) A request is made that accuracy be stressed rather than speed. Pupils should take time to do accurate work, to prove their work, to find and correct their answers, and to find the reason for any incorrect work. (2) In the initial stage, the teacher should take time to help the pupils grasp the meaning and relation of number facts, the explanations and directions, the new steps in the fundamental operations, and the new type problem situations.

17. Morton, Robert Lee, Gray, Merle, Springstun, Elizabeth and Schaaf, William L.²

The guiding principles in Making Sure of Arithmetic as stated by the authors is as follows: "To help the pupil 'make sure' of the successive steps in learning to understand and

¹Op. cit., pp. 3-4.

²Op. cit., pp. i-ii.

to use arithmetic; to make sure that the pupil can think for himself and take each learning step successfully, and to have pupils gain skill with understanding."

18. Overman, James R.¹

The many years of teaching and in the preparation of teachers has developed in the author a definite philosophy concerning the method used in the teaching of mathematics. In his introduction he states three things which a modern course in mathematics for grades seven, eight and nine must do.

"In the first place, since many of the pupils will study no mathematics beyond these years, it must complete the task of supplying the pupils with the common mathematical tools needed for every day living. Second, it must further develop and maintain skill in the manipulation of these tools. Finally, it must acquaint the pupils with the more common and important social situations in which mathematics is needed, and develop the ability to apply mathematical tools to such situations."

The inductive method of teaching is utilized in this book as the author firmly believes that, "the pupils discover mathematics inductively and form their own generalizations."

The organization of the material for the most part is

¹
Op. cit., pp. iii-vi.

"largely social rather than mathematical or logical, as the purpose is to teach the pupil to use mathematics in life."

19. Schorling, Raleigh, Clark, John R., and Smith, Rolland R.¹

In Fundamental Mathematics, the approach is from the point of view of the highly technical age in which we are living. The war revealed the weaknesses in the mathematical backgrounds of so many people. The ever-surging growth and development of industries will continue to demand a sound knowledge of mathematics. However, the authors make this astonishing statement, "the simple mathematical ideas and skills that are useful to most persons today are few in number, and they will be about the same tomorrow and for years to come, regardless of how rapidly the social or economic scene may change; the basic content is not new." The following analogy is made: "Progress in mathematics is a good deal like advance in industry. The newest model of an airplane or automobile may look different from its predecessors, but its construction involves accepted principles of practical physics. The textbook must, from time to time, be brought up to date in order to meet new needs and new applications."

The principles as set down by the authors are as follows:

¹Op. cit., pp. iii-vii.

1. Development of meanings, understandings, insights, appreciations.
2. Emphasis on fundamental processes.
3. Experience with measurement.
4. Wider application of mathematics.
5. Emphasis on the idea of quantitative relationship.

20. Strayer, George Drayton, and Upton, Clifford Brewster.¹

The primary aim as stated by the authors is, "to acquaint the pupils with the importance and the larger uses of mathematics in everyday life.

Other features which characterize this text book are:

1. A course in general mathematics is presented, rather than an intensive treatment of a single subject, independent of the other mathematical subjects.
2. Informational, interpretational, and social aspects of arithmetic are stressed, as well as the computational features.
3. The cultural aspects of geometry are emphasized by showing the relation of this subject to architecture, art and design.
4. The pupil is taught to apply fundamental principles of algebra rather than to manipulate symbols.
5. Graphs have been used to visualize statistical facts in arithmetic, to picture relationships expressed by formulas, and to record each pupil's progress in computation.
6. Motivation, a fundamental principle of teaching, is applied throughout the book by presenting

¹ Op. cit., pp. iii-vi.

each new topic in connection with an interesting motivating problem.

7. Improvement tests are used to maintain computational skills already learned while the pupil is studying the important applications of mathematics to every day life.
8. Diagnostic tests are widely used, as are Problem-solving tests.
9. Provision is made for individual differences.
10. Two alternate arrangements of the year's work are presented to permit a selection of topics in accordance with local needs.

21. Wren, F. Lynwood, and Osburn, W. J.¹

The Number Readiness Series is designed to develop readiness for and understanding of essential number ideas. The organization which is followed by the authors in each book of this series is:

1. The careful use of readiness, inventory, and review tests along with scientifically prepared practice exercises.
2. The provision of material carefully keyed to the tests and practice exercises and designed to prevent and correct errors.
3. The selection and grade placement of arithmetical content.
4. The attention to vocabulary.
5. The use of familiar situations for the preservation of new concepts or skills.
6. The gradual development of the ability to solve problems.

¹
Op. cit., pp. iii-iv.

Interpretation: On the whole the aims and purposes of the authors for writing their respective text books have been most consistent. Foremost, the authors stressed the desire to teach pupils the kind of arithmetic that would be most applicable and useable in everyday life. Secondly, the authors emphasized the necessity for the pupils to think for themselves so that they can solve the problems that arise intelligently and accurately.

Techniques, based on the latest scientific findings and research, have been incorporated by the authors in their respective textbooks. Recognition is given to individual differences and provision is made to meet the various levels of abilities by gradation of topics.

Methods of evaluating teaching and learning have also been scientifically constructed so as to be of the greatest benefit to both the pupil and the teacher.

CHAPTER II

Analysis of Contents

The Purpose of Writing this Chapter. So that the contents of the twenty-one mathematics textbooks for grade eight selected for this study could be analyzed, this chapter has been written.

An attempt has been made (1) to show the distribution of topics in each textbook; (2) to list the different kinds of illustrations which each textbook contains; (3) to analyze each textbook as to the number of examples and problems in tests and in exercises other than in tests; and (4) to compare the various types of instructional aids and helps supplementary to the text.

It is also the purpose of this chapter to explain (1) the procedure used in handling the material selected for this study; (2) the method employed by the author or authors in the writing of the textbook; and (3) the organization and arrangement of the subject matter in each textbook.

Procedure in Handling the Material. When the selection of the textbooks was made, the contents of each book were analyzed (1) to determine the

relative number of pages which were devoted to each unit or chapter; (2) to determine the percentage of pages per chapter and per book; and (3) to determine the number of pages of illustrative material. The latter was designated in respective columns as business forms; charts, diagrams, and tables; geometric forms; directed problems (illustrations of problems enclosed by lines; graphs; directed activities, which include illustrations of procedures showing pupils how to perform experiments; trigonometric and geometric uses; and miscellaneous pictures. The columns of illustrative materials were then totaled (1) horizontally, to show the total number of illustrations per chapter or unit and (2) vertically, to show the total number of illustrations in the book.¹ The reader is referred to tables entitled "Distribution of Contents" namely, tables 2, 4, 6, 8, 10, etc. through 42, for the above information.

✓ The contents of each textbook were then broken down into five divisions, namely, Fundamentals, Daily Applications of Arithmetic, Geometry and Measurement, Indirect measurement, and Algebra. These in turn were further sub-divided into sub-topics. Tables entitled "Analysis of Contents," tables 3, 5, 7, 9, 11, etc. through table 43, show the number of examples

¹It was a question, at times, in which column certain illustrations should be credited. The grand total of either the horizontal or the vertical columns, however, accounts for the illustrations.

and the number of problems found in tests and in practice exercises under each sub-topic for each of the five divisions. In table 46 the distribution of topics is compared with respect to all textbooks.

Finally, the instructional aids and helps supplementary to the textbooks were analyzed. Information relative to material supplementary to the textbook was obtained (1) through various circulars and pamphlets issued by publishing companies and (2) through direct information by correspondence with the publishers.

Distribution of Contents. A study of the tables entitled "Distribution of Contents" will show that in no two textbooks was there a particular pattern followed as to the sequence of topics or to the number of pages allowed each topic. Some authors distributed their material into many short chapters as in the case of Mathematics at Your Service. This text, which is divided into two sections, namely, Eighth Year - First Half and Eighth Year - Second Half, contains twenty-four chapters in all. However, the number of pages devoted to each chapter are fewer in number as compared to Champion Arithmetics for example, which contains only four chapters. To show further variation of the arrangement of the contents, Mathematics and Life and Functional Numbers contain seven chapters each; The Master Key Arithmetics, eight chapters; Practical Mathematics, thirteen chapters;

Everyday Junior Mathematics, sixteen chapters; Learning Arithmetic, eighteen chapters; and Practical Junior Mathematics, nineteen chapters. The majority of the textbooks were allotted ten, eleven, or twelve chapters and are as follows: Real Life Arithmetic, Junior Mathematics, Junior Life Mathematics, and Fundamental Mathematics contain ten chapters; Iroquois New Standard Arithmetics, The New Trend Arithmetic, and Making Sure of Arithmetic contain eleven chapters; and Arithmetic We Use, The New Mathematics, Mathematics Through Experience, and Mathematics in Action contain twelve chapters. The contents of these textbooks, irrespective of the names of the chapters or the units, or the placement in the textbook, covered topics which could be included in varying degrees of frequency and emphasis, under the following five divisions: Fundamentals, Daily Application of Arithmetic, Geometry and Measurement, Indirect Measurement, and Elementary Algebra. However, these divisions are not to be considered as separate or distinct divisions, but rather integrated one with the other. The question of integration will be discussed fully in Chapter III. By referring to the Tables entitled "Distribution of Contents," (tables 2, 4, 6, 8, 10, etc. through 42) it can be seen that the authors of eleven textbooks use the unit method in presenting their material and the authors of ten textbooks use the traditional chapter method.

Illustrations Used. In step with the modern trend in

the use of visual material, the majority of the textbooks in this study are generously supplemented by various kinds of illustrations. These illustrations are classified under the following headings, namely, Number of Business Forms, Charts, Diagrams, and Tables; Geometric Forms; Directed Problems — (illustrations of problems enclosed by lines); Number of Graphs; Directed Activities; Trigonometric and Geometric Uses; and Miscellaneous Pictures. All tables entitled "Distribution of Contents" (tables 2, 4, 6, 8, 10, etc. through 42) show the number of illustrations found in each chapter or unit under the above stated headings. The total number of illustrations in each textbook was determined by adding the total number of illustrations found in each chapter or unit. The percentage of illustrations per book was found by dividing the number of illustrations in each textbook by the total number of pages in the textbook. No attempt was made to evaluate the illustrations.

Instructional Aids and Helps. Through correspondence with the publishers and by means of folders and pamphlets circulated by various publishers it was possible to obtain first hand information concerning the availability of materials supplementary to the textbook. Answer books, teachers' manuals, and workbooks are the most common supplementary materials available. Thirteen textbooks have just answer books; ten textbooks have a teachers' manual; and nine

textbooks have the workbooks. Of the twenty-one textbooks, only one has definite suggestions for visual aids. Making Sure of Arithmetic mentions "Suggested Visual Aids" in its Teacher's Manual. Everyday Junior Mathematics has two answer books — one for tests and one for exercises and problems.

Analysis of Contents. A perusal of table 1 on the following page will show an all-over picture of the comparative distribution of the contents in all the textbooks. The table is divided into six double vertical columns. Each of the six columns is divided into the number of examples and the number of problems found within a given textbook. The columns are headed as follows, beginning from left to right: Fundamentals, Daily Applications, Geometry and Measurement, Indirect Measurement, Algebra, and the Total Number of Examples and Problems. The column to the extreme left contains the names of the textbooks analyzed.

Reading from left to right, it can be seen that Junior Mathematics contains the greatest number of fundamental examples, namely 311 examples. The New Mathematics, First Course contains the greatest number of problems dealing with fundamentals, or 587 problems. Mathematics in Action contains 426 examples plus 36 supplementary examples dealing in Daily Applications. It may be well to note at this point that all starred numbers indicate supplementary examples or problems. Arithmetic We Use contains the greatest number of problems in

Table 1. Analysis of Contents Compared. Total Number of Examples. Total Number of Problems.

Textbook	Fundamentals		Daily Applications	
	Examples	Problems	Examples	Problems
1. Practical Mathematics	1291	96	192	474
2. Everyday Junior Mathematics	1732	232	116	382+12
3. Real Life Arithmetic	584	47	158	521
4. Arithmetic We Use	2195+5	181+36	116+8	624+89
5. Champion Arithmetics	1546+3	188+1	115+17	541+54
6. The Master Key Arithmetic	1047	161+2	115+14	448+4
7. Iroquois New Standard Arithmetic	791	165	279	767
8. Junior Mathematics	3112	188+5	284+4	442+33
9. Mathematics For Today	3012	75+2	315+3	478+77
10. The New Mathematics, First Course	2534	587	233	509
11. Mathematics Through Experience	768	42	182	398
12. The New Trend Arithmetic	1316	183	402	657
13. Mathematics in Action	1300+32	317	426+36	419+34
14. Mathematics and Life	2991	279	270	741
15. Mathematics at Your Service	1796+24	145+1	187	496+31
16. Learning Arithmetic	1973	276	120	631
17. Making Sure of Arithmetic	1990	473	108	535
18. Junior Life Mathematics	2139	109	185	549+30
19. Fundamental Mathematics	1736	172+6	138+1	267+17
20. Practical Junior Mathematics	1116	216+9	605	540+54
21. Functional Numbers	2982	210	113	387

Total 37951+64 4342+62 4659+83 10706+435

*Numbers preceded by a plus sign represent supplementary examples.

Table 1. Analysis of Contents Compared. (Continued)

Geometry and Measurement		Indirect Measurement		Algebra		Total	
Examples	Problems	Examples	Problems	Examples	Problems	Examples	Problems
84	131	33	21	223	61	1823	783
247	278	230	283	732	335	3057	1510+12
44+12	415+10	168	47+17	135	49	1089+12	1079+27
110+1	333+63	101+5	152+25	134+2	123+16	2656+21	1413+229
63+13	437+17	130	136+8	88	74+2	1942+33	1376+82
46	214+6	109+5	67	46	70	1363+19	960+12
231+22	163+9	100+5	97+9	141	82+15	1542+27	1274+33
303+17	180+30	36+3	24	17	07	3752+24	841+68
313+11	99+7	38	163+4	52+1	18	3730+15	833+90
234	292	63	94	43	50	3107	1532
240	348	511	190	581	402	2282	1380
327	148	245	58	330	138	2620	1184
322+6	219+44	326	79	640	161	3014+74	1195+83
253	312	224	114	108	40	3846	1486
515+51	55+2	25+4	01+1	270+6	91+11	2793+85	788+46
06	134	110	62	104	50	2313	1153
92	401	158	72	155	89	2503	1570
174	184	144+12	87	699	173	3341+12	1102+30
229+17	175+19	162	214+7	258	103+1	2523+18	931+50
206+1	195+32	253	104+1	600	248+10	2780+1	1303+106
226	105	142	11	185	49	3648	762

4265+151 4818+244 3308+34 2076+72 5541+9 2413+55 55724+341 24455+868

*Numbers preceded by a plus sign represent supplementary examples.

Daily Applications of Arithmetic -- 624 problems plus 89 supplementary problems. A glance down the length of this column shows that the majority of the textbooks are liberally furnished with problems used in Daily Applications. Mathematics At Your Service leads the other texts with 515 examples dealing with Geometry and Measurement, and with respect to the problems in this column, Champion Arithmetics contains the greatest number of problems -- 437 required problems plus 17 optional or supplementary problems. In the Indirect Measurement column, Mathematics in Action has the greatest number of examples, namely 326, and Everyday Junior Mathematics has the greatest number of problems -- namely 283. Likewise, Practical Junior Mathematics with 600 examples, and Mathematics Through Experience with 402 problems, have the greatest number of examples and problems respectively.

It is interesting to note in studying the totals column that in so far as certain textbooks contain a large number of examples or problems in any one of the five categories mentioned previously, the total figures for the majority of the textbooks are closely related. In order of the largest totals, Mathematics and Life, Junior Mathematics, Mathematics For Today, and Functional Numbers with 3,848, 3,776, 3,745, and 3,648 respectively, headed all the textbooks with the greatest total of examples. Textbooks containing the greatest number of problems in order of quantity are: Arithmetic We Use with 1642 problems; Making Sure of Arithmetic, 1570 problems;

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Daily Applications of Arithmetic -- 524 problems plus 82 supplementary problems. A glance down the length of this column

shows that the majority of the textbooks are liberally furnished with problems used in Daily Applications. Mathematics At Your Service leads the other texts with 515 examples dealing

with Geometry and Measurement, and with respect to the problems in this column, Champion Arithmetic contains the

greatest number of problems -- 437 required problems plus 19 optional or supplementary problems. In the Indirect Measurement

column, Mathematics in Action has the greatest number of examples, namely 326, and Everyday Junior Mathematics has the

greatest number of problems -- namely 283. Likewise, Practical Junior Mathematics with 600 examples, and Mathematics Through

Experience with 402 problems, have the greatest number of examples and problems respectively.

It is interesting to note in studying the totals column that in so far as certain textbooks contain a large number of

examples or problems in any one of the five categories mentioned previously, the total figures for the majority of the

textbooks are closely related. In order of the largest totals, Mathematics and Life, Junior Mathematics, Mathematics For

Today, and Functional Numbers with 3,848, 3,776, 3,745, and 3,648 respectively, headed all the textbooks with the greatest

total of examples. Textbooks containing the greatest number of problems in order of quantity are: Arithmetic We Use

with 1642 problems; Making Sure of Arithmetic, 1570 problems;

The New Mathematics, First Course, 1532 problems; and Every-day Junior Mathematics with 1510 problems.

The frequency of the examples and problems contained in any one textbook does not necessarily determine the quality of the textbook. Table 1 on page 53 merely shows the quantity not the quality.

Organization and Arrangement of Subject Matter. Of the twenty-one textbooks included in this study, the material of ten books are organized into units while the remaining eleven are patterned after the traditional chapter method. No two books contain the same order of units or chapters but similar topics are covered in the course of each textbook.

The seven major phases of the arithmetic processes usually taught in grade eight are included for the most part, by all the texts — some to a greater or lesser degree than others. These phases include (1) finding a number when a per cent of it is given; (2) finding volumes of certain solids; (3) informal geometry of size, shape and position; (4) indirect measurment by scale drawing; (5) ratios and square root; (6) equations and signed numbers; and (7) special applications of mathematics in such topics as investing money, insurance, and taxation.

Detailed comments on the presentation of the subject matter will be made on the following page as each textbook is analyzed separately.

Method Employed by the Author or Authors in the Writing of the Textbook. The authors of most of the textbooks have stated in either their introductions or prefaces the fact that in the writing of their textbook much consideration was given to findings of important investigations of grade placement of arithmetic topics. Also consideration was given to the extensive surveys and studies conducted by the authors themselves to determine the most satisfactory points at which to present the various topics.

Contents of Practical Mathematics Analyzed.

Distribution of Contents. Table 2 on the following page shows that the largest per cent of pages, namely 19.9% was devoted to the study of the triangle and that the smallest per cent of pages was devoted to the study of graphs. The units are comparatively short. The subject of review is evenly dispersed throughout the book and is discussed in Units I, V, IX, XIV and XVIII as well as at the end of each topic.

Illustrations Used. At the beginning of each unit, there is a full page drawing indicative of the material that is introduced in the unit following it, and used as a device for motivating the unit. Reading from left to right, Table 2 indicates that there is a total of 167 various illustrations used. The total figure includes 5 business forms; 26 charts, diagrams, or tables; 48 illustrations of geometric figures;

Table 2. Distribution of Contents in Practical Mathematics. Number of Pages the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Illustrations of Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, and Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigono-metric Uses	Miscell-aneous Pictures	Total No. Illustrations
Unit											
I Introduction	7	2.7	0	1	0	1	0	0	0	1	3
II Graphs	7	2.7	0	0	0	0	4	0	0	0	4
III Budgets	23	8.8	0	4	0	4	2	2	0	1	13
IV Cash Accounts	10	3.8	2	0	0	0	0	0	0	1	3
V Review	9	3.5	0	0	36	0	0	0	0	0	36
VI Triangles	27	10.3	0	0	0	4	0	9	1	2	16
VII Installment Buying	15	5.7	0	0	0	0	0	0	0	2	2
VIII Savings Banks	15	5.7	3	4	0	4	0	0	0	1	12
IX Review	6	2.3	0	0	0	0	0	0	0	0	0
X More About Triangles	25	9.6	0	2	12	3	0	9	0	2	28
XI Personal Insurance	19	7.3	0	3	0	2	0	0	0	3	8
XII Property Insurance	17	6.5	0	2	0	3	2	0	0	2	9
XIII Social Security	18	6.9	0	5	0	1	0	0	0	4	10
XIV Review	9	3.5	0	0	0	0	0	0	0	0	0
XV The Shorthand of Arithmetic	17	6.5	0	2	0	2	0	0	0	1	5
XVI Solving Algebraic Equations	19	7.3	0	1	0	7	0	0	0	1	9
XVII Applying Algebra to Geometry	12	4.6	0	2	0	6	0	0	0	1	9
XVII Final Review	6	2.3	0	0	0	0	0	0	0	0	0
Total	261	100.0	5	26	48	37	8	20	1	22	= 167

37 illustrations of directed problems; 8 graphs; 20 illustrations of directed activities; one illustration showing a trigonometric use; and 22 miscellaneous pictures. All geometric figures are drawn to scale.

Instructional Aids. There is available to the teachers in the way of supplementary material (1) an answer book for tests and exercises, and (2) a pamphlet called "1001 Review Exercises."

Analysis of Contents. Table 3 on the next page shows a total of 2606 examples and problems found either in tests or in practice exercises under the various sub-divisions of the five main categories. It can be easily seen at a glance which areas offer the greatest number of examples or problems for practice or testing purposes. Constant review of the fundamentals throughout this text results in a high figure in the sum total of examples and problems mentioned under Fundamentals. Table 3 also discloses the fact that volume is not taught in this textbook — a topic usually discussed in grade eight.

Next to Fundamentals, the greatest number of examples and problems are found under Daily Applications of Arithmetic. Insurance is discussed in much detail with a total number of 229 problems and examples. The topic of investment is discussed the least with only four problems available.

Geometry and Measurement command a total of 215 problems

Table 3. Analysis of Contents in Practical Mathematics. Number of Examples.
Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	348	13	327	23	711
Fractions	267	1	23	0	291
Decimals	206	7	0	0	213
Denominate Numbers	45	45	0	0	90
Percentage	60	7	15	0	82
Total	926	73	365	23	1387
Daily Application of Arithmetic					
Business Transactions	0	29	0	2	31
Graphs	0	24	0	29	53
Insurance	0	48	91	90	229
Interest and Banking	0	31	76	20	127
Investments	0	4	0	0	4
Problems of the Home	0	66	25	82	173
Taxes	0	0	0	49	49
Total	0	202	192	272	666
Geometry and Measurement					
Angles	0	20	0	4	24
Area	0	0	34	12	46
Construction and Measurement	0	17	44	36	97
Geometric Figures	0	36	0	0	36
Perimeter	0	0	6	6	12
Volume	0	0	0	0	0
Total	0	73	84	58	215
Indirect Measurement					
Congruence and Similarity	0	0	0	0	0
Ratio and Proportion	21	15	0	0	36
Right Triangle	0	0	0	0	0
Scale Drawing	0	3	0	0	3
Square Root	0	0	12	3	15
Total	21	18	12	3	54
Algebra					
Equations	10	46	141	0	197
Formulas	0	0	72	15	87
Total	10	46	213	15	284
Grand Total	957	412	866	371	2606

and examples and to this total the largest contributing topic is Construction and Measurement. Congruence and Similarity are entirely omitted from the study of Indirect Measurement, as is the study of the Right Triangle as applied to indirect measurement.

Organization and Arrangement of Subject Matter. Practical Mathematics is based on the unit plan and is divided into eighteen related units of work. Reviews have been included at the end of each topic. In addition, there are Monthly Reviews and a Final Cumulative Term Review. Practice Tests, Inventory Tests, and Achievement Tests are found at frequent intervals. The wording of the problems appears to be simple. Footnotes are introduced at the bottom of each page where necessary, to explain the meaning of all unusual words.

Contents of Everyday Junior Mathematics Analyzed.

Distribution of Contents. Contrary to the textbook just analyzed, Everyday Junior Mathematics devotes the largest percentage of its pages to the topics of Equations, 9%; Formulas, 7.5%; Indirect Measurement, 7.7%; Scale Drawings, 7.1%; and the Construction of Figures, 6.3%. A glance at Table 4 on the next page discloses the fact that the largest percentage of pages is applied toward the Fundamental Applications of

and examples and to this fact the largest contributing factor is Construction and Measurement. Construction and Measurement are entirely omitted from the study of Indirect Measurement, as is the study of the Right Triangle as applied to Indirect Measurement.

Organization and Arrangement of Subject Matter. Practice-

and Mathematics is based on the unit plan and is divided into eighteen related units of work. Reviews have been included at the end of each topic. In addition, there are Monthly Reviews and a Final Cumulative Term Review. Practice Tests, Inventory Tests, and Achievement Tests are found at frequent intervals. The wording of the problems appears to be simple. Footnotes are introduced at the bottom of each page where necessary, to explain the meaning of all unusual words.

Contents of Everyday Junior Mathematics Analyzed.

Distribution of Contents. Contrary to the textbook and

analyzed, Everyday Junior Mathematics devotes the largest percentage of its pages to the topic of Equations, 32; Fractions, 17.5; Indirect Measurement, 7.5; Scale Drawings, 7.5; and the Construction of Figures, 5.5. A glance at Table 4 on the next page discloses the fact that the largest percentage of pages is applied toward the fundamental applications of

Table 4. Distribution of Contents in Everyday Junior Mathematics. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures and Total Number of Illustrations.

Title of Chapter or Unit	The No. of Pages	Per Cent	Business Forms	Charts, Tables Diagrams	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total No. Illustrations
Chapter											
Introduction	6	1.3	0	0	0	0	0	0	0	3	3
I Measuring Lengths: Scale Drawings: Maps and Charts	32	7.1	0	26	0	1	3	11	0	6	47
II Learning to Construct Accurate Figures	29	6.3	0	37	16	0	0	38	10	3	104
III The Language of Graphs	17	3.7	0	5	0 0	0	16	0	0	1	22
IV The Place of Banking in Modern Life	26	5.7	9	0	0	4	0	0	0	8	21
V Savings and Invest- ments	27	5.9	3	10	0	1	1	0	0	4	19
VI Making Figures the Same or Similar	24	5.3	1	12	38	0	0	5	0	7	63
VII Making Comparisons and Studying Re- lated Changes	26	5.7	0	25	23	4	4	1	0	3	53
VIII Indirect Measure- ment	35	7.7	0	25	23	9	0	22	0	6	85
IX Insurance	23	5.1	0	8	0	0	1	0	0	5	14
X Taxes and Their Uses	19	4.2	0	9	0	1	2	0	0	3	15
XI Learning to Use the Ideas and Processes of Mathematical Shorthand	28	6.2	0	52	24	8	0	5	0	5	94
XII Formulas and Their Many Uses	34	7.5	0	18	29	0	0	17	13	8	85
XIII Equations and Prob- lems	41	9.0	0	13	2	0	3	11	5	4	38
XIV Looking Again at Fundamental Operations of Arithmetic	48	10.6	0	2	4	26	0	24	0	8	64
XV Gaining a Mastery of Percentage	18	4.0	0	23	0	5	1	0	0	1	30
XVI Important Terms and Facts of Geometry	21	4.6	0	36	33	3	0	15	0	5	92
Total	454	99.9	13	301	185	62	31	149	28	80 -	849

Table 1. Distribution of Concepts in Everyday Junior Mathematics. The number of pages, the percentage, the number of business forms, charts, diagrams, tables, geometric forms, directed problems, number of graphs, directed activities, trigonometric and geometric uses, miscellaneous pictures and total number of illustrations.

Page	The No. of Per Cent	Forms	Diagrams	Charts	Tables	Geometric Forms
1	1.3	0	0	0	0	0
2	1.3	0	0	0	0	0
3	1.3	0	0	0	0	0
4	1.3	0	0	0	0	0
5	1.3	0	0	0	0	0
6	1.3	0	0	0	0	0
7	1.3	0	0	0	0	0
8	1.3	0	0	0	0	0
9	1.3	0	0	0	0	0
10	1.3	0	0	0	0	0
11	1.3	0	0	0	0	0
12	1.3	0	0	0	0	0
13	1.3	0	0	0	0	0
14	1.3	0	0	0	0	0
15	1.3	0	0	0	0	0
16	1.3	0	0	0	0	0
17	1.3	0	0	0	0	0
18	1.3	0	0	0	0	0
19	1.3	0	0	0	0	0
20	1.3	0	0	0	0	0
21	1.3	0	0	0	0	0
22	1.3	0	0	0	0	0
23	1.3	0	0	0	0	0
24	1.3	0	0	0	0	0
25	1.3	0	0	0	0	0
26	1.3	0	0	0	0	0
27	1.3	0	0	0	0	0
28	1.3	0	0	0	0	0
29	1.3	0	0	0	0	0
30	1.3	0	0	0	0	0
31	1.3	0	0	0	0	0
32	1.3	0	0	0	0	0
33	1.3	0	0	0	0	0
34	1.3	0	0	0	0	0
35	1.3	0	0	0	0	0
36	1.3	0	0	0	0	0
37	1.3	0	0	0	0	0
38	1.3	0	0	0	0	0
39	1.3	0	0	0	0	0
40	1.3	0	0	0	0	0
41	1.3	0	0	0	0	0
42	1.3	0	0	0	0	0
43	1.3	0	0	0	0	0
44	1.3	0	0	0	0	0
45	1.3	0	0	0	0	0
46	1.3	0	0	0	0	0
47	1.3	0	0	0	0	0
48	1.3	0	0	0	0	0
49	1.3	0	0	0	0	0
50	1.3	0	0	0	0	0
51	1.3	0	0	0	0	0
52	1.3	0	0	0	0	0
53	1.3	0	0	0	0	0
54	1.3	0	0	0	0	0
55	1.3	0	0	0	0	0
56	1.3	0	0	0	0	0
57	1.3	0	0	0	0	0
58	1.3	0	0	0	0	0
59	1.3	0	0	0	0	0
60	1.3	0	0	0	0	0
61	1.3	0	0	0	0	0
62	1.3	0	0	0	0	0
63	1.3	0	0	0	0	0
64	1.3	0	0	0	0	0
65	1.3	0	0	0	0	0
66	1.3	0	0	0	0	0
67	1.3	0	0	0	0	0
68	1.3	0	0	0	0	0
69	1.3	0	0	0	0	0
70	1.3	0	0	0	0	0
71	1.3	0	0	0	0	0
72	1.3	0	0	0	0	0
73	1.3	0	0	0	0	0
74	1.3	0	0	0	0	0
75	1.3	0	0	0	0	0
76	1.3	0	0	0	0	0
77	1.3	0	0	0	0	0
78	1.3	0	0	0	0	0
79	1.3	0	0	0	0	0
80	1.3	0	0	0	0	0
81	1.3	0	0	0	0	0
82	1.3	0	0	0	0	0
83	1.3	0	0	0	0	0
84	1.3	0	0	0	0	0
85	1.3	0	0	0	0	0
86	1.3	0	0	0	0	0
87	1.3	0	0	0	0	0
88	1.3	0	0	0	0	0
89	1.3	0	0	0	0	0
90	1.3	0	0	0	0	0
91	1.3	0	0	0	0	0
92	1.3	0	0	0	0	0
93	1.3	0	0	0	0	0
94	1.3	0	0	0	0	0
95	1.3	0	0	0	0	0
96	1.3	0	0	0	0	0
97	1.3	0	0	0	0	0
98	1.3	0	0	0	0	0
99	1.3	0	0	0	0	0
100	1.3	0	0	0	0	0
101	1.3	0	0	0	0	0
102	1.3	0	0	0	0	0
103	1.3	0	0	0	0	0
104	1.3	0	0	0	0	0
105	1.3	0	0	0	0	0
106	1.3	0	0	0	0	0
107	1.3	0	0	0	0	0
108	1.3	0	0	0	0	0
109	1.3	0	0	0	0	0
110	1.3	0	0	0	0	0
111	1.3	0	0	0	0	0
112	1.3	0	0	0	0	0
113	1.3	0	0	0	0	0
114	1.3	0	0	0	0	0
115	1.3	0	0	0	0	0
116	1.3	0	0	0	0	0
117	1.3	0	0	0	0	0
118	1.3	0	0	0	0	0
119	1.3	0	0	0	0	0
120	1.3	0	0	0	0	0
121	1.3	0	0	0	0	0
122	1.3	0	0	0	0	0
123	1.3	0	0	0	0	0
124	1.3	0	0	0	0	0
125	1.3	0	0	0	0	0
126	1.3	0	0	0	0	0
127	1.3	0	0	0	0	0
128	1.3	0	0	0	0	0
129	1.3	0	0	0	0	0
130	1.3	0	0	0	0	0
131	1.3	0	0	0	0	0
132	1.3	0	0	0	0	0
133	1.3	0	0	0	0	0
134	1.3	0	0	0	0	0
135	1.3	0	0	0	0	0
136	1.3	0	0	0	0	0
137	1.3	0	0	0	0	0
138	1.3	0	0	0	0	0
139	1.3	0	0	0	0	0
140	1.3	0	0	0	0	0
141	1.3	0	0	0	0	0
142	1.3	0	0	0	0	0
143	1.3	0	0	0	0	0
144	1.3	0	0	0	0	0
145	1.3	0	0	0	0	0
146	1.3	0	0	0	0	0
147	1.3	0	0	0	0	0
148	1.3	0	0	0	0	0
149	1.3	0	0	0	0	0
150	1.3	0	0	0	0	0
151	1.3	0	0	0	0	0
152	1.3	0	0	0	0	0
153	1.3	0	0	0	0	0
154	1.3	0	0	0	0	0
155	1.3	0	0	0	0	0
156	1.3	0	0	0	0	0
157	1.3	0	0	0	0	0
158	1.3	0	0	0	0	0
159	1.3	0	0	0	0	0
160	1.3	0	0	0	0	0
161	1.3	0	0	0	0	0
162	1.3	0	0	0	0	0
163	1.3	0	0	0	0	0
164	1.3	0	0	0	0	0
165	1.3	0	0	0	0	0
166	1.3	0	0	0	0	0
167	1.3	0	0	0	0	0
168	1.3	0	0	0	0	0
169	1.3	0	0	0	0	0
170	1.3	0	0	0	0	0
171	1.3	0	0	0	0	0
172	1.3	0	0	0	0	0
173	1.3	0	0	0	0	0
174	1.3	0	0	0	0	0
175	1.3	0	0	0	0	0
176	1.3	0	0	0	0	0
177	1.3	0	0	0	0	0
178	1.3	0	0	0	0	0
179	1.3	0	0	0	0	0
180	1.3	0	0	0	0	0
181	1.3	0	0	0	0	0
182	1.3	0	0	0	0	0
183	1.3	0	0	0	0	0
184	1.3	0	0	0	0	0
185	1.3	0	0	0	0	0
186	1.3	0	0	0	0	0
187	1.3	0	0	0	0	0
188	1.3	0	0	0	0	0
189	1.3	0	0	0	0	0
190	1.3	0	0	0	0	0
191	1.3	0	0	0	0	0
192	1.3	0	0	0	0	0
193	1.3	0	0	0	0	0
194	1.3	0	0	0	0	0
195	1.3	0	0	0	0	0
196	1.3	0	0	0	0	0
197	1.3	0	0	0	0	0
198	1.3	0	0	0	0	0
199	1.3	0	0	0	0	0
200	1.3	0	0	0	0	0
201	1.3	0	0	0	0	0
202	1.3	0	0	0	0	0
203	1.3	0	0	0	0	0
204	1.3	0	0	0	0	0
205	1.3	0	0	0	0	0
206	1.3	0	0	0	0	0
207	1.3	0	0	0	0	0
208	1.3	0	0	0	0	0
209	1.3	0	0	0	0	0
210	1.3	0	0	0	0	0
211	1.3	0	0	0	0	0
212	1.3	0	0	0	0	0
213	1.3	0	0	0	0	0
214	1.3	0	0	0	0	0
215	1.3	0	0	0	0	0
216	1.3	0	0	0	0	0
217	1.3	0	0	0	0	0
218	1.3	0	0	0	0	0
219	1.3	0	0	0	0	0
220	1.3	0	0	0	0	0
221	1.3	0	0	0	0	0
222	1.3	0	0	0	0	0
223	1.3	0	0	0	0	0
224	1.3	0	0	0	0	0
225	1.3	0	0	0	0	0
226	1.3	0	0	0	0	0
227	1.3	0	0	0	0	0
228	1.3	0	0	0	0	0
229	1.3	0	0	0	0	0
230	1.3	0	0	0	0	0
231	1.3	0	0	0	0	0
232	1.3	0	0	0	0	0
233	1.3	0	0	0	0	0
234	1.3	0	0	0	0	0
235	1.3	0	0	0	0	0
236	1.3	0	0	0	0	0
237	1.3	0	0	0	0</	

Arithmetic. Graph study receives the least attention with 17 pages of 3.7% attributed toward its study. The column of figures to the right show the number of pages allotted to each chapter.

Illustrations Used. Everyday Junior Mathematics is generously interspersed with various types of graphic material. Table 4 shows that the largest number of illustrations occurs in chapters dealing with measurement and geometric figures. There is a sum total of 104 illustrations in Chapter II — the chapter with the greatest number of illustrations. A study of Table 4 will show the frequency in which illustrations occur within each chapter. There is a sum of 849 illustrations throughout the text.

Instructional Aids. Materials supplementary to the textbook include (1) a Teacher's Manual for Everyday Junior Mathematics; (2) a booklet containing answers to tests; and (3) a booklet containing answers to exercises and problems.

Analysis of Contents. Table 5 on the following page shows in the column at the extreme right, headed "Total," that there are 1964 examples and problems dealing with the Fundamentals of Arithmetic; 498 examples and problems plus 12 optional examples and problems dealing with the Daily Applications of Arithmetic; 525 problems and examples concerned with Geometry and Measurement; 513 problems and

Table 5. Analysis of Contents in Everyday Junior Mathematics. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	41	7	367	50	465
Fractions	61	8	705	20	794
Decimals	39	8	163	8	218
Denominate Numbers	47	5	90	18	160
Percentage	93	46	126	62	327
Total	281	74	1451	158	1964
Daily Applications of Arithmetic					
Business Transactions	0	0	0	0	0
Graphs	8	8	0	52	68
Insurance	0	10	17	42+7	69+7
Interest and Banking	4	22	81	64	171
Investments	0	15	6	105	126
Problems of the Home	0	0	0	0+5	0+5
Taxes	0	11	0	53	64
Total	12	66	104	316+12	498+12
Geometry and Measurement					
Angles	0	0	0	40	40
Areas	0	0	63	25	88
Construction and Measuring	30	34	76	136	276
Geometric Figures	0	0	0	0	0
Perimeters	0	0	23	14	37
Volume	0	0	55	29	84
Total	30	34	217	244	525
Indirect Measurement					
Congruence and Similarity	0	10	0	108	118
Ratio and Proportion	10	9	129	75	223
Right Triangle	0	7	0	41	48
Scale Drawings	10	5	42	20	77
Square Root	0	0	39	8	47
Total	20	31	210	252	513
Algebra					
Equations	72	13	282	111	478
Formulas	0	19	143	145	307
Total	72	32	425	256	785
Grand Total	615	237	2407	1226+12	4285+12

*Numbers preceded by a plus sign represent supplementary examples.

examples concerned with Indirect Measurement; and 785 problems and examples dealing with Equations and Formulas in Algebra. The largest number of examples and problems, once again, must be credited to the topic of Fundamentals.

Organization and Arrangement of Subject Matter. Everyday Junior Mathematics contains five units -- each having its own central theme. Each unit is divided into chapters which are self contained. They are as follows: Unit I contains three chapters; Unit II contains two chapters; Unit III contains three chapters; Unit IV contains two chapters; and Unit V contains three chapters. There is a sixth supplementary Review Unit which contains three chapters with materials of instruction necessary for reteaching the basic concepts and skills of arithmetic and geometry.

Each chapter contains chapter tests and a summary of the chapter. Mastery Tests and Inventory Tests occur frequently throughout the text. Each unit is preceded by an introduction called "The Purpose and Importance of the Unit to be Studied."

Everyday Junior Mathematics is so written that the first four units provide a minor course for classes consisting largely of "slow" or definitely retarded pupils. Unit V which contains a brief introduction to the principles of elementary algebra with particular emphasis on the formula and the equation, may be regarded as optional in the case of retarded classes.

The mathematical program of this text is based on long-continued experimental testing in many classes of numerous schools as well as to the authoritative developments in educational theory, in the psychology of learning, and in the field of curriculum instruction.

Contents of Real Life Arithmetic Analyzed.

Distribution of Contents. The chapters in Real Life Arithmetic are very evenly distributed as to the number of pages and no extremes as to allotment of pages occur. Table 6 on the next page shows that there is a total of 268 pages in the text. Reading from top to bottom, it can be seen that there are 32 pages, or 11.9% allotted to Compound Interest and Installment Buying; 31 pages, or 11.6% to Insurance; 19 pages, or 7.1% to Taxes; 31 pages, or 11.6% to Using Practical Measurements; 24 pages, or 8.9% to Stocks and Bonds; 27 pages, or 10.1% to Learning About Solid Figures; 26 pages, or 9.7% to the Metric System; 20 pages, or 7.5% to Learning and Using Square Root; 26 pages, or 9.7% to the Equation; and 32 pages, or 11.9% to Checking the Year's Work. Unit I and Unit X were accorded the greatest number of pages.

Illustrations Used. Since units or chapters dealing with measurement and construction are more receptive to illustrations of varying kinds, it is interesting to note that the unit containing the greatest number of illustrations is Unit

Table 6. Distribution of Contents in Real Life Arithmetic. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, and Miscellaneous Pictures and Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total No. Illustrations
Unit											
I Compound Interest and Installment Buying	32	11.9	0	6	0	4	0	0	0	1	11
II Insurance	31	11.6	0	7	0	1	1	0	0	1	10
III Taxes	19	7.1	0	2	0	1	5	0	0	0	8
IV Using Practical Measurements	31	11.6	0	13	11	0	13	1	6	0	44
V Stocks and Bonds	24	8.9	0	5	0	0	8	0	0	2	15
VI Learning About Solid Figures	27	10.1	0	6	7	0	2	7	9	1	32
VII The Metric System	26	9.7	0	3	0	0	0	4	2	2	11
VIII Learning and Using Square Root	20	7.5	0	9	0	0	5	3	0	1	18
IX The Equation	26	9.7	0	6	0	4	2	2	0	0	14
X Checking the Year's Work	32	11.9	0	4	0	0	3	0	0	0	7
Total	268	100.0	0	61	18	10	30	17	17	8	170

Table 2. Distribution of contents in each file. The number of
 items, the number of pages, the number of tables, charts, diagrams,
 tables, diagrams, forms, directed problems, number of graphs, directed
 problems, trigonometric and geometric laws, and miscellaneous problems
 and the number of illustrations.

File No. No. of Pages Geom. Forms Tables Diagrams, Geometric
 Problems

File No.	No. of Pages	Geom. Forms	Tables	Diagrams, Geometric Problems
I. General Introduction	32	11.9	0	0
II. Introduction	31	11.8	0	0
III. Tables	13	7.1	0	0
IV. Diagrams	31	11.8	0	11
V. Problems and Problems	24	8.9	0	0
VI. Problems and Problems	27	10.1	0	7
VII. Problems and Problems	28	9.7	0	0
VIII. Problems and Problems	20	7.8	0	0
IX. Problems and Problems	28	9.7	0	0
X. Problems and Problems	28	11.9	0	0
Total	238	100.0	0	18

IV (Using Practical Measurements) with a total of 44 illustrations. Unit VI (Learning About Solid Figures) follows in order of quantity with 32 illustrations. There is a total of 170 illustrations in this textbook.

Instructional Aids. Materials supplementary to Real Life Arithmetic include (1) Suggestions for Teaching "Real Life Arithmetic" Grade Eight; and (2) a Workbook on "Real Life Arithmetic."

Analysis of Contents. Table 7 on the following page shows that tests do not include any examples or problems under the topics of Indirect Measurement and Algebra and no examples under Geometry and Measurement and Applications of Arithmetic. Unlike the results of the previous two textbooks, Real Life Arithmetic contains the largest number of problems and examples in Daily Applications of Arithmetic instead of in Fundamentals. There is a total number of 2160 problems and examples plus 39 supplementary problems and examples.

Organization and Arrangement of Subject Matter. Real Life Arithmetic, which is divided into ten units, has for its central theme throughout the text the way people use their money to provide for themselves such things, as for example, goods, protection against emergencies, community services, etc. Therefore, much attention is given to investment of money, insurance, taxes, and installment buying. Much review

Table 7. Analysis of Contests in Real Life Arithmetic. Number of Examples.
Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	28	9	230	5	272
Fractions	12	0	105	0	117
Decimals	44	2	84	5	135
Denominate Numbers	23	4	16	1	43
Percentage	42	3	0	18	64
Total	149	18	435	29	631
Daily Application of Arithmetic					
Business Transactions	0	9	0	40	49
Graphs	0	0	15	84	99
Insurance	0	0	25	115	140
Interest and Banking	0	12	73	29	114
Investments	0	2	0	123	125
Problems of the Home	0	5	0	40	45
Taxes	0	0	45	62	107
Total	0	28	158	493	679
Geometry and Measurement					
Angles	0	0	0	0	0
Area	0	0	0	79	79
Construction and Measurement	0	0	32	118	150
Geometric Figures	0	0	0	24	24
Perimeter	0	1	0	35	36
Volume	0	1	12+12	157+10	170+22
Total	0	2	44 12	413 10	459 22
Indirect Measurement					
Congruence and Similarity	0	0	0	0	0
Ratio and Proportion	0	0	30	29+10	59+10
Right Triangle	0	0	0	0	0
Scale Drawing	0	0	0	1	1
Square Root	0	0	138	17+7	155+7
Total	0	0	168	47+17	215+17
Algebra					
Equations	0	0	114	29	143
Formulas	0	0	21	12	33
Total	0	0	135	41	176
Grand Total	149	48	940+12	1023+27	2160+39

*Numbers preceded by a plus sign represent supplementary examples.

is contained within the units of the text. Graphic work is emphasized to a large extent. A short introduction to the text precedes the first unit and discusses "How Man Learned to Compute" and "How Man Learned to Keep Records."

Contents of Arithmetic We Use Analyzed

Distribution of Contents. It can be seen from Table 8 on the following page that Arithmetic We Use contains 12 chapters which include a sum total of 291 pages. A study of columns one and two discloses that Chapter IV contains the least number of pages — namely 14 pages, or 4.8% and that Chapter IX follows closely with 19 pages or 6.5%. The chapters accorded the most space are Chapter III, Percentage and its Application, with 34 pages or 11.7%; and Chapter I, Reviewing the Basic Operations, with 33 pages or 11.3%.

Illustrations Used. A glance at Table 8 on the following page will show that each chapter is generously supplied with several forms of visual aids. The chapter containing by far the most liberal number of illustrations is Chapter IX, The Geometry About Us, with 49 illustrations. Chapter V, Paying for the Use of Money, contains only 13 illustrations, the least of any chapter. Not all topics are conducive to visual aids therefore discrepancies exist as to the number and types of illustrations with respect to the different chapters within any textbook.

is contained within the units of the text. Graphic work is emphasized to a large extent. A short introduction to the text precedes the first unit and discusses "How Man Learned to Compute" and "How Man Learned to Keep Records."

Contents of Arithmetic We Use Analyzed

Distribution of Contents. It can be seen from Table 3 on the following page that Arithmetic We Use contains 18 chapters which include a sum total of 281 pages. A study of columns one and two discloses that Chapter IV contains the least number of pages -- namely 14 pages, or 4.8% and that Chapter IX follows closely with 18 pages or 6.4%. The chapters accorded the most space are Chapter III, Percentage and its Application, with 34 pages or 11.7%; and Chapter I, Reviewing the Basic Operations, with 33 pages or 11.5%.

Illustrations Used. A glance at Table 3 on the following page will show that each chapter is generously supplied with several forms of visual aids. The chapter containing by far the most liberal number of illustrations is Chapter IX, The Geometry About Us, with 43 illustrations. Chapter V, Paying for the Use of Money, contains only 13 illustrations, the least of any chapter. Not all copies are conducive to visual aids therefore discrepancies exist as to the number and types of illustrations with respect to the different chapters within any textbook.

Table 8. Distribution of Contents in Arithmetic We Use. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures and Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts Diagrams, Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total Number of Illustrations
Chapter											
I. Reviewing the Basic Operations	33	11.3	0	6	0	7	1	0	0	7	21
II. The Formula	22	7.6	0	1	12	2	0	5	0	5	25
III. Percentage and its Application	34	11.7	0	4	0	17	5	0	0	4	30
IV. Reading and Making Graphs	14	4.8	0	0	0	0	14	1	0	0	15
V. Paying for the Use of Money	20	6.9	5	1	0	5	0	0	0	2	13
VI. Saving and Investing Money	30	10.3	2	6	0	1	1	0	0	8	18
VII. Kinds and Cost of Insurance	26	8.9	0	15	0	0	2	1	0	5	23
VIII. Paying for the Cost of Government	22	7.6	0	4	0	3	4	0	0	6	17
IX. The Geometry About Us	19	6.5	0	7	20	0	0	0	21	1	49
X. Solids and their Measures	24	8.2	0	4	2	5	0	3	10	3	27
XI. Indirect Measurement and Square Root	27	9.3	0	6	6	13	0	8	1	3	37
XII. Increasing Your Knowledge of Algebra	20	6.9	0	2	0	11	0	0	0	3	16
Total	291	100.0	7	56	40	64	27	18	32	47 =	291

Instructional Aids. In addition to the textbook, there is available (1) a Teacher's Answer Book and (2) a Workbook for Arithmetic We Use.

Analysis of Contents. Arithmetic We Use provides many supplementary examples and problems for additional practice. There are 250 such problems and examples in addition to the required 4069 problems and examples. Table 9 shows that the Fundamentals once again command the largest number of problems and examples, namely, 2376 required problems and examples plus 41 supplementary ones. This number indicates frequent review of the Fundamentals throughout the textbook.

Organization and Arrangement of Subject Matter. The twelve chapters of Arithmetic We Use is modeled after the educational philosophy of the Sixteenth Year Book. The authors recognize two major phases in the modern arithmetic program — (1) that of the number system and (2) its social significance. They have made a special effort to consider the findings of important investigations of grade placement of arithmetic topics and have made extensive surveys of their own to determine the most satisfactory points at which to present the various elements of work. Arithmetic We Use follows closely a scientific gradation of subject matter in the seven major phases of the arithmetic processes taught in grade eight. Recurrent items throughout the text include Chapter Reviews, Chapter Tests, Things to Remember in Each

In addition to the textbook, there

is available (1) a Teacher's Answer Book and (2) a Workbook

for Arithmetic We Use.

Analysis of Contents. Arithmetic We Use provides many

supplementary examples and problems for additional practice.

There are 250 such problems and examples in addition to the

reprinted 4000 problems and examples. Table 3 shows that the

fundamentals once again command the largest number of problems

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of arithmetic topics and have made extensive surveys of their

own to determine the most satisfactory points at which to

present the various elements of work. Arithmetic We Use

follows closely a scientific gradation of subject matter in

the seven major phases of the arithmetic processes taught in

grade eight. Recurrent items throughout the text include

Chapter Reviews, Chapter Tests, Things to Remember in Each

Table 9. Analysis of Contents in Arithmetic We Use. Number of Examples.
Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	96	5	400	33+5	534+5
Fractions	131	1	550+5	29+5	711+10
Decimals	122	2	464	16 1	604+1
Denominate Numbers	0	1	0	1	2
Percentage	114	3	318	85+25	525+25
Total	463	17	1732+5	164+36	2376+41
Daily Applications of Arithmetic					
Business Transactions	0	17	19	38+15	74+15
Graphs	0	6	0	69+12	75+12
Insurance	0	13	6	109+9	128+9
Interest and Banking	0	17	42+6	64+10	123+16
Investments	0	21	23	126+13	170+13
Problems of the Home	0	9	14	26+5	49+5
Taxes	0	11	12+2	98+25	121+27
Total	0	94	116+8	530+89	740+97
Geometry and Measurement					
Angles	0	0	0	7	7
Area	0	19	59	39+23	117+23
Construction and Measurement	0	13	0	67+5	80+5
Geometric Figures	0	8	0	72+6	80+6
Perimeter	0	6	14	18+11	38+11
Volume	0	11	37+1	73+18	121+19
Total	0	57	110+1	276+63	443+64
Indirect Measurement					
Congruence and Similarity	0	0	0	10+8	10+8
Ratio and Proportion	0	10	25+3	52+4	87+7
Right Triangle	0	2	23	24+4	49+4
Scale Draw ing	0	2	0	23+3	25+3
Square Root	5	1	48+2	28+6	82+8
Total	5	15	96+5	137+25	253+30
Algebra					
Equations	1	8	84	49+10	142+10
Formulas	1	4	18+2	24+3	47+5
Total	2	12	102+2	73+16	189+18
Grand Total	470	195	2156+21	1180+229	4001+250

*Numbers preceded by a plus sign represent supplementary examples.

Chapter, Practice Exercises, Progress Tests, Special Report Topics, Starred pages and many starred problems for the more able pupils and Vocabulary Reviews.

Contents of Champion Arithmetics Analyzed

Distribution of Contents. Table 10 on the following page shows that the Stepped-Up Edition of Champion Arithmetics contains four chapters, namely, chapters V, VI, VII and VIII. Diagnostic Inventory Tests and Remedial Work (Chapter V) contains 73 pages or 25.9%; Chapter VI, Money and Business contains 94 pages or 33.3%. Chapter VII, Measurements, Areas, and Volumes, contains 58 pages or 20.6% and Chapter VIII, Equations, Right Triangles, Metric System, contains 57 pages or 20.2%. The text has a total of 282 pages.

Illustrations Used. There are 196 illustrations found in Champion Arithmetics — Stepped-Up Edition, all of which are very small. There are no full page illustrations. Table 10 shows how the illustrations are allocated throughout the text.

Instructional Aids. The usual supplementary material is also available with respect to Champion Arithmetics, Stepped-Up Edition and consist of (1) an Answer Book and (2) a Teacher's Manual.

Analysis of Contents. Once again, fundamental problems

Table 10. Distribution of Contents in Champion Arithmetics, Stepped-Up Edition. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures and Total Number of Illustrations

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total Number of Illustrations
Chapter											
I. Diagnostic Inventory Tests and Remedial Work	73	25.9	2	9	2	13	13	1	0	6	46
II. Money and Business	94	33.3	12	8	0	6	2	0	0	8	36
III. Measurements, Areas, and Volumes	58	20.6	0	22	30	6	0	4	0	8	70
IV. Equations, Right Triangles, Metric System	57	20.2	0	20	2	13	1	0	5	3	44
Total	282	100.0	14	59	34	38	16	5	5	25	= 196

Table 10. Distribution of Contents in Chapter Activities, Staggered-Up Edition. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Triangles, and Geometric Uses, Miscellaneous Pictures and Total Number of Illustrations

Unit	Class or Chapter	Title of	No. of Pages	Per Cent	Business Forms	Charts	Diagrams	Tables	Geometric Forms	Directed Problems
I. Directed Inventory	15	22.9	2	9	0	0	0	0	0	15
II. Directed Business	24	32.3	12	0	0	0	0	0	0	0
III. Measurements, Areas, and Volumes	38	20.6	0	22	0	0	0	0	0	0
IV. Squares, Right Triangles, and Similar Figures	27	20.2	0	20	0	0	0	0	0	15
Total	282	100.0	14	59	0	0	0	0	0	38

and examples in tests and in exercises occur in greatest frequency. A study of table 11 on the following page reveals the sum total of 1734 problems and examples plus 4 supplementary problems and examples. The large totals in the problems column under Exercises seems to indicate that problems predominate over the number of examples contained in Champion Arithmetics. Both Indirect Measurement and Algebra receive limited emphasis in comparison with other topics.

Organization and Arrangement of Subject Matter. The Stepped-Up Edition is a product of modern demands for proper grade placement of subject matter and is an outgrowth of recent educational trends and research studies in the teaching of arithmetic. The differences between the Stepped-Up Edition and the original edition consist of the following four points: (1) the teaching of measurement has been expanded; (2) the making and interpretation of graphs has been expanded; (3) there has been some reorganization in the work with equations, and (4) installment buying has been advanced from grade seven to grade eight. The material of this textbook has been organized into four full chapters — namely, chapters V through VIII. The first chapter deals with detailed diagnostic and remedial work; the second chapter incorporates all problems and examples dealing expressly with money and business; the third chapter deals expressly with measurement, areas, and volumes; and the last chapter takes up the

Table 11. Analysis of Contents in Champion Arithmetics. Number of Examples.
Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	164	0	76	16	256
Fractions	303	10+1	311	17	641+1
Decimals	214	0	221	35	470
Denominate Numbers	0	0	34+3	32	66+3
Percentage	154	27	69	51	301
Total	835	37+1	711+3	151	1734+4
Daily Applications of Arithmetic					
Business Transactions	0	2	85+17	99	186+17
Graphs	0	0	0	91+9	91+9
Insurance	0	1	10	46+6	57+6
Interest and Banking	0	1	12	44+16	57+16
Investments	0	3	8	154+10	165+10
Problems of the Home	0	0	0	23	23
Taxes	0	24+4	0	53+9	77+13
Total	0	31+4	115+17	510+50	656+71
Geometry and Measurement					
Angles	0	0	0	0	0
Area	0	4	0	138+3	142+3
Construction and Measurement	0	0	19	140+3	159+3
Geometric Figures	22	0	0	12+1	34+1
Perimeter	0	0	16+13	26+2	42+15
Volume	0	3	6	114+8	123+8
Total	22	7	41+13	430+17	500+30
Indirect Measurement					
Congruence and Similarity	0	0	0	4	4
Ratio and Proportion	0	0	65	55+2	120+2
Right Triangle	0	0	12	46+4	58+4
Scale Drawing	0	0	0	24	24
Square Root	0	0	53	7+2	60+2
Total	0	0	130	136+8	266+8
Algebra					
Equations	0	0	61	30+2	91+2
Formulas	0	21	15	10	46
Total	0	21	76	40+2	137+2
Grand Total	857	96+5	1073+33	1267+77	3193+115

*Numbers preceded by a plus sign represent supplementary examples.

Table 11. Analysis of Contents in Champion Arithmetic. Number of Examples.
Number of Problems.

Topics	Examples	Problems	Tests	Examples	Problems	Exercises	Total
Formulas	184	0	0	76	18	336	
Whole Numbers	308	10+1	311	17	341+1		
Fractions	314	0	351	38	470		
Decimals	0	0	34+3	33	68+3		
Percentage	184	27	69	61	301		
Total	833	37+1	711+3	181	1734+4		
Applications of Arithmetic	0	3	87+3	93	188+1		
Business Transactions	0	0	0	91+3	91+3		
Graphs	0	1	10	46+3	57+3		
Insurance	0	1	12	44+13	57+13		
Interest and Banking	0	3	8	184+10	185+10		
Investments	0	0	0	33	33		
Problems of the Home	0	34+4	0	33+3	77+13		
TeXes	0	31+4	113+17	310+30	636+11		
Total	0	31+4	113+17	310+30	636+11		
Geometry and Measurement	0	0	0	0	0		
Angles	0	4	0	138+3	143+3		
Area	0	0	19	140+3	159+3		
Construction and Measurement	0	0	0	12+1	34+1		
Geometric Figures	33	0	0	36+3	62+13		
Perimeter	0	3	8	113+3	123+3		
Volume	0	7	41+13	430+17	500+30		
Total	33	7	41+13	430+17	500+30		
Indirect Measurement	0	0	0	4	4		
Congruence and Similarity	0	0	63	35+3	130+3		
Ratio and Proportion	0	0	13	48+4	58+4		
Right Triangle	0	0	0	34	34		
Scale Drawing	0	0	33	7+3	30+3		
Square Root	0	0	130	136+3	266+3		
Total	0	0	130	136+3	266+3		
Algebra	0	0	81	30+3	91+3		
Equations	0	31	16	10	46		
Formulas	0	31	78	40+3	117+3		
Total	0	31	78	40+3	117+3		
Grand Total	837	38+3	107+33	1337+17	2331+13		

*Numbers preceded by a plus sign represent supplementary examples.

equation on a small scale — also the right triangle and a study of the metric system. A great deal of reading material is involved since problems predominate over examples.

Contents of Master Key Arithmetic Analyzed

Distribution of Contents. The eight units are divided comparatively evenly as to the allotment of pages per unit. By consulting Table 12 on the following page it can be seen that the unit on Business Transactions, namely Unit II, contains the most pages. In this chapter are covered the topics of per cent, increase and decrease, trade discount and invoices, commissions, checking accounts, bank discount, promissory notes, traveler's checks, and interest. The 42 pages constitute 15.9% of the entire text. Table 12 will show how many pages were allocated to other units.

Illustrations Used. There are 185 various illustrations throughout the entire textbook — most of which ^{are} ably done in a color combination of black and orange. Table 12, on the following page shows that the unit on measurement, namely Unit VII, claims the greatest number of illustrations — 46 in all. A further study of Table 12 will show the page allotment of other units.

Instructional Aids. An answer book is the only available aid supplementary to the textbook.

Table 12. Distribution of Contents in The Master Key Arithmetics. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures and Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geo- metric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geomet- ric Uses	Misc. Pictures	Total Number of Illustrations
Unit											
I. A Better Understanding of Numbers	34	12.9	0	4	0	0	4	0	0	3	11
II. Business Transactions	42	15.9	7	2	0	8	2	0	0	6	25
III. Investments	32	12.1	1	1	0	6	0	0	0	5	13
IV. Practical Measurements	28	10.6	0	19	9	0	5	0	0	4	37
V. Taxes and Insurance	34	12.9	0	3	0	5	1	0	0	3	12
VI. New Ways to Solve Problems	34	12.9	0	15	0	13	0	1	0	1	30
VII. Studies in Measurement	32	12.1	0	30	0	3	0	5	0	8	46
VIII. Social Studies and Review	28	10.6	0	3	0	1	2	1	0	4	11
Total	264	100.0	8	77	9	36	14	7	0	34 =	185

Analysis of Contents. As Table 13 on the following page will indicate, the order of the total number of problems and examples for each topic, follows the order of the topics as arranged in the table. Reading from top to bottom in the extreme right hand column, it can be seen that there are 1208 required problems and examples dealing with the Fundamentals, plus 2 optional problems; 563 required problems and examples as used in Daily Applications plus 18 optional ones; 260 problems and examples with respect to Geometry and Measurement plus 6 optional problems; 176 problems and examples dealing with Indirect Measurement plus 5 optional examples; and 116 problems and examples concerned with equations and formulas. The entire text contains 2323 required problems and examples and 31 optional problems and examples.

There are 842 fundamental examples distributed in the various tests throughout the book. This is an indication of constant review of the fundamentals. A total of 302 problems applied in the study of Daily Applications shows an emphasis on solution of problems dealing with life situations. Congruence and similarity are accorded no space in this text. Also, little space is devoted to the study of the Right Triangle and Scale Drawings as they apply to indirect measurement.

Organization and Arrangement of Subject Matter. The subject matter in the Master Key Arithmetic text is arranged in eight related units. Each unit contains four "Constant

Table 13. Analysis of Contents in The Master Key Arithmetic. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	662	16+2	5	44	727+2
Fractions	34	1	80	3	118
Decimals	42	3	55	2	102
Denominate Numbers	0	5	14	17	36
Percentage	104	27	51	43	225
Total	842	52+2	205	109	1208+2
Daily Applications of Arithmetic					
Business Transactions	21+14	76	59	72	225+14
Graphs	0	3	5	13	21
Insurance	0	12+1	12	22	46+1
Interest and Ba nking	0	0	0	8	8
Investments	0	24+3	0	72	96+3
Problems of the Home	0	9	0	65	74
Taxes	3	22	15	50	90
Total	24+14	146+4	91	302	563+18
Geometry and Measurement					
Angles	0	0	0	0	0
Area	4	31	20	35	90
Construction and Measurement	0	12+3	21	79	112+3
Geometric Figures	0	0+3	0	0	0+3
Perimeter	0	5	0	18	23
Volume	1	13	0	21	35
Total	5	61+6	41	153	260+6
Indirect Measurement					
Congruence and Similarity	0	0	0	0	0
Ratio and Proportion	5	5	34	24	68
Right Triangle	0	0	0	8	8
Scale Drawings	0	1	0	9	10
Square Root	6+5	3	64	17	90+5
Total	11+5	9	98	58	176+5
Algebra					
Equations	27	5	12	51	95
Formulas	7	3	0	11	21
Total	34	8	12	62	116
Grand Total	916+19	276+12	447	684	2323+31

* Numbers preceded by a plus sign represent supplementary examples.

Tests" — one in each of the fundamental processes. The authors call these tests "Constant Tests" because "they constitute dependable measures of a pupil's progress." At the end of each unit there are three Review Tests. The first of these called "Understanding Number" measures the pupil's ability in such phases of the subject as vocabulary, the general understanding of relationships and procedures, and the interpretation of results. The second of the tests, called "Computing" is made up of abstract exercises. The third test, "Problem Solving" consists of oral and written problems.

A brief history of numbers is included in the first unit. This serves as a basis for better understanding of number.

Content of Iroquois New Standard Arithmetics Analyzed

Distribution of Contents. An inspection of Table 14 on the following page will show that Iroquois New Standard Arithmetic contains a total of 324 pages. Of this total, the largest per cent is devoted to the study of banking, interest, and money — namely 14.8% or 48 pages. Following closely, with 46 pages or 14.2% to its credit is the unit on Geometric Figures and Measurement. Third, in order is the unit on Per Cent with 36 pages or 11.1%. With the exception of Chapter XI, which contains but twelve pages of review, the remaining units compare closely as to page allotments — ranging from

Table 14. Distribution of Contents in Iroquois New Standard Arithmetics. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures and Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total Number of Illustrations
Chapter											
I. Arithmetic in Our Daily Lives	24	7.4	0	1	0	7	5	0	0	5	18
II. Per Cents in Everyday Life	36	11.1	1	4	0	11	1	0	0	0	17
III. Banking, Interest, and Money	48	14.8	9	6	0	10	1	1	0	10	37
IV. Insurance: Protection Against Losses	30	9.3	0	3	0	1	0	0	0	6	10
V. Taxes: How We Support Public Services	28	8.6	0	0	0	3	2	1	0	6	12
VI. Investments - Putting Money to Work	24	7.4	1	1	0	4	0	0	0	1	7
VII. How A Family Uses Arithmetic	22	6.8	2	0	0	3	0	2	0	3	10
VIII. Geometric Figures and Measurements	46	14.2	0	8	67	8	0	0	0	4	17
IX. Algebra	26	8.0	0	2	0	9	1	1	0	1	14
X. Comparing and Using Geometric Figures	28	8.6	0	5	8	2	0	10	23	2	50
XI. A Final Checkup	12	3.7	0	5	0	0	0	0	0	0	5
Total	324	99.9	13	35	75	58	10	15	23	38	= 267

24 to 30 pages, or from 7.4% to 9.3% of the entire text.

Illustrations Used. There are 267 small black and white illustrations found throughout the text. Many of these illustrations have either a title or a legend beneath the illustration. Unit VIII contains the greatest number of illustrations -- namely 87. Of these 87 illustrations, 8 are charts, tables, or diagrams; 67 are geometric forms; 8 are directed problems, and 4 are miscellaneous pictures. A study of Table 14 will show how the remaining illustrations are distributed in the other units.

Instructional Aids. A Teacher's Manual and an Answer Book are available as supplementary aids to Iroquois New Standard Arithmetics.

Analysis of Contents. Table 15 on the following page shows a grand total of 2816 problems and examples found in this textbook plus 60 optional examples and problems. The emphasis in this textbook appears to be in the area of problem solution with respect to Daily Application of Arithmetic. Of the sum total of 1046 problems and examples, 553 are problems located in practice exercises and 214 are distributed in tests. A study of Table 15 will show to what extent emphasis is placed upon the various sub-divisions by the allocation of problems and examples in these sub-divisions.

24 to 30 pages, or from 7.44 to 9.32 of the entire text.

Illustrations Used. There are 287 small black and white illustrations found throughout the text. Many of these illustrations have either a title or a legend beneath the illustration. Unit VIII contains the greatest number of illustrations -- namely 87. Of these 87 illustrations, 8 are charts, tables, or diagrams; 67 are geometric forms; 8 are directed problems, and 4 are miscellaneous pictures. A study of Table 14 will show how the remaining illustrations are distributed in the other units.

Instructional Aids. A Teacher's Manual and an Answer book are available as supplementary aids to Trigonometry and Standard Mathematics.

Analysis of Contents. Table 15 on the following page shows a grand total of 2815 problems and examples found in this textbook plus 30 optional examples and problems. The emphasis in this textbook appears to be in the area of problem solution with respect to Daily Application of Arithmetic. Of the sum total of 1045 problems and examples, 555 are problems located in practice exercises and 490 are distributed in tests. A study of Table 15 will show to what extent emphasis is placed upon the various sub-divisions by the allocation of problems and examples in these sub-divisions.

Table 15. Analysis of Contents in Iroquois New Standard Arithmetic.
Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	61	4	103	28	196
Fractions	42	0	197	30	269
Decimals	62	0	94	25	181
Denominate Numbers	1	3	31	28	63
Percentage	68	0	132	47	247
Total	234	7	557	158	956
Daily Applications of Arithmetic					
Business Transactions	0	55	61	76	192
Graphs	0	0	0	8	8
Insurance	0	30	26	77	133
Interest and Banking	12	34	120	116	282
Investments	2	59	41	73	175
Problems of the Home	0	13	0	75	88
Taxes	0	23	17	128	168
Total	14	214	265	553	1046
Geometry and Measurement					
Angles	0	1	10	9	20
Area	0	22	4+13	43+2	69+15
Construction and Measurement	8	0	49	18	75
Geometric Figures	10	0	122	0	132
Perimeter	0	6	2	21	29
Volume	0	19	26+9	24+7	69+16
Total	18	48	213+22	115+9	394+31
Indirect Measurement					
Congruence and Similarity	0	1	0	22	23
Ratio and Proportion	12	8	19	22+2	61+2
Right Triangle	0	10	0+5	3+7	13+12
Scale Drawings	0	10	0	12	22
Square Root	8	2	61	7	78
Total	20	31	80+5	66+9	197+14
Algebra					
Equations	26	10	109	34+2	179+2
Formulas	0	2	6	8+13	16+13
Total	26	12	115	42+15	195+15
Grand Total	312	312	1230+27	934+33	2788+60

*Numbers preceded by a plus sign represent supplementary examples.

Organization and Arrangement of Subject Matter. The arrangement of the material of Iroquois New Standard Arithmetics into eleven related units is based on studies and findings by authoritative people in the field of mathematics. As result of these studies the authors claim "to have stepped-up certain basic topics taught in the grades; to have provided for a longer span of time for mastery of the fundamentals; to have graded the various topics in accord with their usefulness to the child; and to have provided enriching materials in accordance with the special recommendations of leading courses of study."

The Iroquois New Standard Arithmetic Series has practiced the new concept in mathematics whereby, the seven major phases usually taught in the eighth grade, are presented on a simpler level to grades below the eighth grade. Consequently, the units in the eighth grade review and extend the concepts previously presented and taught. For example, "in the seventh grade, the pupil gains his first acquaintance with algebra, not by name, but by the use of letters in simple formulas. This usage is continued and extended in the eighth grade."

There are included in the textbook, periodic Diagnostic Tests, Reviews, and general tests.

Contents of Junior Mathematics Analyzed

Distribution of Contents. Table 16 on the following page shows that the ten chapters contain an average of 49.9 pages per chapter. The last chapter in the book -- Diagnostic and Remedial Program -- contains 60 pages, or 13.9% which indicates that much stress is given to diagnostic and remedial work. The chapter receiving the second greatest number of pages is Chapter IX, with 48 pages, or 11.2%. Chapter VII is allotted the least number of pages -- 33 pages or 7.7%.

Illustrations Used. Of the 319 illustrations which are found in this textbook, 74 are located within the pages of Chapter VII -- Using Mathematics in Design and Construction. Many of the pictures in this text are actual photographs. To captivate the interest of the pupil, there are many cartoon-like diagrams throughout the text and usually drawn above the title of the new chapters. A study of Table 16 will show the distribution of the illustrations throughout the textbook.

Instructional Aids. An Answer Book and a Teacher's Manual can be had as supplementary aids to this textbook.

Analysis of Contents. Much emphasis is given the topic of fundamentals in this text. Table 17 on page 86 shows that of the 4593 problems and examples in the entire textbook, 3300 are allotted to the fundamentals. The remaining 1293 problems and examples are distributed as follows:

Table 16. Distribution of Contents in Junior Mathematics. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures and Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total Number of Illustrations
Chapter											
I. Mathematics at Work	47	11.0	0	5	5	0	1	0	0	20	31
II. Mathematics and the Consumer	43	10.0	0	1	0	0	1	0	0	12	14
III. Expressing Ideas With Lines and Angles	36	8.4	0	3	0	0	5	8	1	8	25
IV. How We Use the Bank	39	9.1	7	1	0	6	0	0	0	5	19
V. How We Use Triangles	35	8.4	0	5	12	0	0	16	18	8	59
VI. Mathematics in Buying and Selling	43	10.0	2	0	0	7	0	0	0	8	17
VII. Using Mathematics in Design and Construction	33	7.7	0	7	32	0	0	4	18	13	74
VIII. Some Vocational Uses of Mathematics	44	10.3	0	4	22	0	2	10	11	10	59
IX. Mathematics in Transportation	48	11.2	0	7	0	3	2	1	0	7	20
X. Diagnostic and Remedial Program	60	13.9	0	0	0	0	0	0	0	1	1
Total	429	100.0	9	33	71	16	11	39	48	92	= 319

Table 17. Analysis of Contents in Junior Mathematics. Number of Examples.
Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	278	2	461	13+1	754+1
Fractions	317	0	628	1	946
Decimals	238	0	385	0	623
Denominate Numbers	7	14	51	37	109
Percentage	437	19	310	102+4	868+4
Total	1277	35	1835	153+5	3300+5
Daily Applications of Arithmetic					
Business Transactions	0	80	124+3	151+17	355+20
Graphs	0	3	27+1	60+7	90+8
Insurance	6	0	33	2	41
Interest and Banking	0	15	71	34+8	120+8
Investments	0	0	0	1	1
Problems of the Home	0	4	3	44+1	51+1
Taxes	1	1	19	47	68
Total	7	103	277+4	339+33	726+37
Geometry and Measurement					
Angles	9	0	37+2	19	65+2
Area	15	2	26+1	56+2	99+3
Construction and Measurement	6	4	107+10	29+9	146+19
Geometric Figures	17	0	30+4	8	55+4
Perimeter	0	4	31	11	46
Volume	4	2	21	45+19	72+19
Total	51	12	252+19	168+30	483+47
Indirect Measurement					
Congruence and Similarity	0	0	0	0	0
Ratio and Proportion	0	0	0	0	0
Right Triangle	0	0	0	0	0
Scale Drawing	8	4	19	20	51
Square Root	0	0	9+3	0	9+3
Total	8	4	28+3	20	60+3
Algebra					
Equations	0	0	0	0	0
Formulas	8	0	9	7	24
Total	8	0	9	7	24
Grand Total	1351	154	2401+24	687+68	4593+96

*Numbers preceded by a plus sign represent supplementary examples.

726 are found dealing with Daily Applications of Arithmetic plus the 37 more optional ones; 483 are a part of the Geometry and Measurement problems and examples plus the 47 optional ones; 60 deal with Indirect Measurement; and 24 deal with formula. Several topics are not accorded any examples or problems: Congruence and Similarity, Ratio and Proportion, the Right Triangle, and Equations.

Organization and Arrangement of Subject Matter. The subject matter in Junior Mathematics is arranged into ten chapters. The material within each chapter centers around activities common to everyday problems in living. The authors have built their textbook upon the premise that mathematics and communication are an integral part of each other. Therefore, be they social, political, economic, scientific, or recreational, they require at least a general understanding of mathematical concepts. Problem solving is stressed very emphatically and an abundant number of problems are available throughout the text. Recurrent items found within the text include: Diagnostic Tests, Hurdles (at the conclusion of each chapter) Inventory Tests, Problem Scale, Practice Tests, Review Exercises, Shock Absorbers, and Try These. It may be noted here, that Junior Mathematics follows closely the pattern of the next book to be analyzed — even to identical chapters.

Contents of Mathematics For Today Analyzed

Distribution of Contents. Mathematics For Today is a compact textbook containing 449 pages. Table 18 on the following page shows the distribution of these pages. It is interesting to note that this textbook also emphasizes diagnostic and remedial work and allots the largest per cent of pages towards that end, namely 60 pages, or 13.4%.

Illustrations Used. A glance at Table 18 will reveal the fact that with a total of 437 illustrations, there are nearly enough illustrations to allow one to each page of the text. Many of the pictures in this text are actual photographs and not merely drawings. To captivate the interest of the pupil, there are many cartoon-like diagrams throughout the text found above the title of each new chapter. A study of Table 18 will show the distribution of the illustrations within the text. Once again, a chapter on Design and Construction is allocated the greatest number of illustrations. A full page photograph precedes each chapter.

Instructional Aids. The usual two aids supplementary to the textbook are also available with this textbook, namely, (1) The Teacher's Manual and (2) the Answer Book.

Analysis of Contents. A study of Table 19 on page 90 will show once more that of the grand total of 4563 problems and examples, the largest contribution to this total must

Contents of Mathematics For Today Analyzed

Distribution of Contents. Mathematics For Today is a

compact textbook containing 449 pages. Table 18 on the following page shows the distribution of these pages. It is interesting to note that this textbook also emphasizes diagnostic and remedial work and allocates the largest per cent of pages towards that end, namely 80 pages, or 17.8%.

Illustrations Used. A glance at Table 18 will reveal

the fact that with a total of 437 illustrations, there are nearly enough illustrations to allow one to each page of the text. Many of the pictures in this text are actual photographs and not merely drawings. To captivate the interest of the pupil, there are many cartoon-like diagrams throughout the text found above the title of each new chapter. A study of Table 18 will show the distribution of the illustrations within the text. Once again, a chapter on Design and Construction is allocated the greatest number of illustrations. A full page photograph precedes each chapter.

Instructional Aids. The manual two aids supplementary to

the textbook are also available with this textbook, namely, (1) The Teacher's Manual and (2) The Answer Book.

Analysis of Contents. A study of Table 18 on page 80

will show once more that of the grand total of 437 problems and examples, the largest contribution to this total must

Table 18. Distribution of Contents in Mathematics For Today. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures and Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometrics Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total Number of Illustrations
Chapter											
I. Mathematics at Work	47	10.5	0	11	11	0	1	0	2	20	52
II. Mathematics and Earning Money	53	11.8	1	12	0	0	13	0	0	7	33
III. Mathematics and the Consumer	44	9.8	0	1	0	0	1	0	0	11	13
IV. Using Mathematics in Design and Construction	34	7.6	0	26	59	0	0	0	16	8	109
V. Mathematics in Buying and Selling	44	9.8	2	0	0	0	0	0	0	8	10
VI. Using Formulas in Life	20	4.4	0	1	52	0	0	0	6	1	60
VII. How We Use the Bank	40	8.9	7	4	0	1	0	0	0	6	18
VIII. How We Use Triangles in Life	36	8.0	0	9	29	0	0	10	15	8	71
IX. Savings and Investments	30	6.7	2	3	0	1	3	1	0	2	12
X. How Ratios Help in Measurement	41	9.1	0	17	17	0	0	4	17	2	57
XI. Diagnostic and Remedial Program	60	13.4	0	0	0	0	0	0	0	2	2
Total	449	100.0	12	84	175	2	18	15	56	75 =	437

Table 19. Analysis of Contents in Mathematics For Today. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	258	3	461	16+2	738+2
Fractions	409	1	666	1	1077
Decimals	152	3	388	10	553
Denominate Numbers	0	9	50	6	65
Percentage	270	25	358	1	654
Total	1089	41	1923	34+2	3087+2
Daily Applications of Arithmetic					
Business Transactions	0	46	82	122+26	250+26
Graphs	0	3	17+1	22+12	42+13
Insurance	0	13	0	29+2	42+2
Interest and Banking	26	22	149+2	34+5	231+7
Investments	0	8	23	61+13	92+13
Problems of the Home	0	12	18	96+16	126+16
Taxes	0	1	0	9+2	10+3
Total	26	105	289+3	373+77	793+80
Geometry and Measurement					
Angles	0	0	8+4	6	14+4
Area	5	5	71	32+4	113+4
Construction and Measurement	11	0	81+4	8	100+4
Geometric Figures	10	1	47+3	6	64+3
Perimeter	0	1	26	17	44
Volume	0	10	54	13+3	77+3
Total	26	17	287+11	82+7	412+18
Indirect Measurement					
Congruence and Similarity	0	2	5	60+3	67+3
Ratio and Proportion	0	23	25	44+1	92+1
Right Triangle	0	0	0	0	0
Scale Drawings	4	9	4	25	42
Square Root	0	0	0	0	0
Total	4	34	34	129+4	201+4
Algebra					
Equations	0	0	0	0	0
Formulas	8	17	44+1	1	70+1
Total	8	17	44+1	1	70+1
Grand Total	1153	214	2577+15	619+90	4563+105

*Numbers preceded by a plus sign represent supplementary examples.

be attributed to the 3087 fundamental problems and examples. Of these 3087 problems and examples, 1089 are examples found in tests through the text. A study of Table 19 will reveal how the remaining problems and examples are distributed. No space is allocated to the study of equations. Provision is made for optional work with a total of 105 such problems and examples listed.

Organization and Arrangement of Subject Matter. The material in Mathematics For Today is arranged into eleven chapters. The material within each chapter centers around activities common to everyday problems in living. As in Junior Mathematics, problem solving is stressed very emphatically and an abundant number of problems in all chapters are available to the pupils. All seven phases of mathematics taught in grade eight are presented. Recurrent items found within the text include numerous diagnostic and inventory tests, "How Well Did You Do" exercises, Practice Tests, Review Exercises, Shock Absorbers, "Some Hurdles for You to Take," and "Try These." The last three mentioned are forms of review exercises. These occur frequently throughout the book and serve as a constant challenge to the pupils.

Contents of The New Mathematics, First Course, Analyzed.

Distribution of Contents. A glance at Table 20 on the next page will furnish the necessary information with respect

Table 20. Distribution of Contents in The New Mathematics, First Course.
 The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures and Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per- Cent	Business Forms	Charts Diagrams Tables	Geometric Form	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total No. of Illustrations
Unit											
I Strengthening the Foundation	29	6.7	0	3	0	2	0	0	0	5	10
II Breaking Up Whole Numbers into Fractions for Fine Work	31	7.2	0	0	0	13	0	0	0	7	20
III Fractions As Ratios Pictured in Graphs	45	10.5	0	4	0	1	20	0	0	7	32
IV Pictures of Line Relations in Geometry	35	8.2	0	14	20	1	2	1	0	5	43
V Using Geometry as a Tool	33	7.7	0	10	29	10	0	0	0	3	52
VI Simplifying Arithmetic by Geometry and Algebra	49	11.5	0	21	3	7	0	0	0	6	37
VII Getting Ready For Everyday Business. Decimals.	33	7.7	0	0	0	20	0	0	0	5	25
VIII The Foundation of Everyday Business. Percentage.	37	8.6	0	0	0	11	2	0	0	5	18
IX First Steps in Everyday Business. Margin.	35	8.2	0	0	0	12	0	0	0	5	17
X The Foundation of Banking Business. Interest.	31	7.2	4	0	0	10	0	2	0	4	20
XI Everyday Business Papers and Accounts	35	8.2	5	3	0	0	0	0	0	4	12
XII General Business Survey	35	8.2	0	0	0	3	0	0	0	5	8
Total	428	99.9	9	55	52	90	24	3	0	61	294

to the allotment of pages to each of the twelve units. A range of 6.7% to 11.5% in the allotment of pages indicates a fairly close distribution of pages. Although Unit I may contain the least number of pages, the subject of fundamentals is continued into Unit II, thereby resulting in approximately 60 pages of fundamentals.

Illustrations Used. True to form again, the two chapters dealing with geometric figures surpass other chapters in the number of illustrations allotted each chapter. Chapter V, Using Geometry As a Tool, contains a total of 52 illustrations and Chapter IV, Pictures of Line Relations in Geometry, contains a total of 43 illustrations. Table 20 shows how the 294 illustrations found in this text book are distributed throughout the textbook.

Instructional Aids. The following materials are available as supplementary aids to the textbook: (1) an Answer Book, (2) a Teacher's Manual, and (3) a workbook called New Mathematics Workbook, by Stone and George.

Analysis of Contents. A study of Table 21 on the next page will disclose an interesting pattern as to the totals of each topic. The totals according to size, follow the sequence of the topical arrangement. Thus, reading from top to bottom, it can be seen that of the grand total of 4637 problems and examples, 3121 are Fundamentals; 742 are Daily Applications of

Table 21. Analysis of Contents in The New Mathematics, First Course.
Number of Examples. Number of Problems.

Topics	Tests		Exercises		
	Examples	Problems	Examples	Problems	Total
Fundamentals					
Whole Numbers	422	18	357	110	907
Fractions	423	1	256	127	807
Decimals	295	0	262	106	552
Denominate Numbers	20	43	21	21	105
Percentage	155	21	323	140	639
Total	1315	83	1219	504	3121
Daily Applications of Arithmetic					
Business Transactions	45	2	76	197	320
Graphs	0	6	0	88	94
Insurance	6	0	0	10	16
Interest and Banking	15	21	83	72	191
Investments	0	0	0	0	0
Problems of the Home	0	0	8	109	117
Taxes	0	0	0	4	4
Total	66	29	167	480	742
Geometry and Measurement					
Angles	0	0	37	5	42
Area	31	35	24	88	178
Construction and Measurement	16	45	85	21	167
Geometric Figures	0	0	17	0	17
Perimeter	24	13	0	45	82
Volume	0	3	0	37	40
Total	71	97	163	197	526
Indirect Measurement					
Congruence and Similarity	0	0	0	0	0
Ratio and Proportion	0	32	35	32	99
Right Triangle	0	0	0	0	0
Scale Drawings	0	0	0	30	30
Square Root	0	0	28	0	28
Total	0	32	63	62	157
Algebra					
Equations	0	0	21	16	37
Formulas	12	0	10	34	56
Total	12	0	31	50	93
Grand Total	1464	240	1643	1292	4639

Arithmetic; 526 are Geometry and Measurement; 157 are Indirect Measurement; and 93 are Algebra.

Organization and Arrangement of Subject Matter. The materials in the New Mathematics First Course are divided into two sections. Part I is entitled "The New Mathematics" and deals with fundamentals, ratios, graphs, geometry, and algebra. Part II is called "Using the New Mathematics in Our Everyday Business." Percentage and all its various applications are studied in detail in this section of the text.

The material in both sections is organized into units — six units in Part I and six units in Part II. Throughout the book, the practical everyday utility of mathematics is stressed. The special features of the text is the introductory page to each unit called "The Key Thoughts."

Contents of Mathematics Through Experience Analyzed.

Distribution of Contents. A unit on Graphs and one on Measuring Geometric Solids share first place in containing the greatest number of pages. Up to this point, space allotted to the study of graphs has been kept down to a minimum. The two units which receive the smallest space allotment are Unit II, Learning to Use Formulas, and Unit III, Using Proportions to Study Relationships. For detailed information on the allocation of pages with respect to the other units in this textbook, refer to Table 22 on the following page.

Table 22. Distribution of Contents in Mathematics Through Experience. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per-Cent	Business Forms	Charts Diagrams Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total No. of Illustrations
Unit											
I Learning to Use Simple Equations	32	8.4	0	1	0	3	0	0	0	1	5
II Learning to Use Formulas	23	6.1	0	0	0	1	0	0	0	3	4
III Using Proportions to Study Relationships	22	5.8	0	3	0	0	0	0	0	2	5
IV Using Algebra to Solve Problems	28	7.4	0	0	0	1	0	0	0	5	6
V Finding Areas of Geometric Figures	35	9.2	0	15	2	3	0	3	3	4	30
VI Using the Right Triangle	29	7.6	0	11	0	6	0	4	3	1	25
VII Measuring Geometric Solids	45	11.8	0	11	9	10	0	12	0	4	46
VIII Learning More About the Use of Graphs	45	11.8	0	2	0	0	18	0	0	1	21
IX Learning How Credits Are Maintained-Banking	41	10.8	11	3	0	4	1	0	0	2	21
X Learning How Money is Put to Work-Investments	25	6.6	1	2	0	0	0	0	0	2	5
XI Learning How Risk is Combined: Insurance	27	7.1	1	4	0	0	0	0	0	3	8
XII Learning How Governments are Financed: Taxation	28	7.4	0	0	0	0	0	0	0	5	5
Total	380	100.0	13	52	11	28	19	19	6	33	181

Illustrations Used. Table 22 shows that there is a total of 181 illustrations found within this textbook. A full page photographic plate precedes Unit I and Unit V. The third photographic plate precedes page 349. Seven chapters contain only 4 to 8 illustrations. Based upon the total number of pages, Mathematics Through Experience contains the fewest illustrations.

Instructional Aids. An answer book is the only available material supplementary to the textbook.

Analysis of Contents. Contrary to former textbooks, this allots considerable space to the study of Algebra which contains the greatest number of problems and examples, or 839 in all. Fundamentals follow in second place with 810 problems and examples, and Indirect Measurement third, with a total of 710 problems and examples. It is interesting to note that, heretofore, the Fundamentals total far out-numbered the other totals. In general, there is no marked variance in the comparison of the total number of problems and examples allocated to each topic. The distribution of problems and examples can be studied on Table 23.

Organization and Arrangement of Subject Matter. The material in Mathematics Through Experience is organized into twelve units which are presented in three parts as follows:
Part I — Getting Acquainted with Algebra; Part II —

Table 23. Analysis of Contents in Mathematics Through Experience. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	3	0	159	15	177
Fractions	2	0	194	10	206
Decimals	2	0	138	0	140
Denominate Numbers	0	0	80	2	82
Percentage	1	0	189	15	205
Total	8	0	760	42	810
Daily Applications of Arithmetic					
Business Transactions	0	0	0	29	29
Graphs	0	10	0	61	71
Insurance	22	6	14	51	93
Interest and Banking	24	4	48	97	173
Investments	22	4	22	68	116
Problems of the Home	0	0	0	0	0
Taxes	22	4	8	64	98
Total	90	28	92	370	580
Geometry and Measurement					
Angles	0	0	0	0	0
Area	10	5	142	174	331
Construction and Measurement	0	1	12	24	37
Geometric Figures	0	18	3	0	21
Perimeter	0	0	0	10	10
Volume	0	2	73	114	189
Total	10	26	230	322	588
Indirect Measurement					
Congruence and Similarity	0	0	0	12	12
Ratio and Proportion	18	25	290	86	419
Right Triangle	10	7	35	59	111
Scale Drawing	0	0	0	1	1
Square Root	0	0	158	0	158
Total	28	32	483	158	701
Algebra					
Equations	16	23	298	172	509
Formulas	64	26	84	156	330
Total	80	49	382	328	839
Grand Total	216	135	1947	1220	3518

Learning How Algebra and Geometry Cooperate; Part III, Seeing How Algebra and Arithmetic Cooperate. It can be seen that algebra is correlated with both the phase of geometry and the various aspects of arithmetic.

The authors have written this textbook with the following purpose in mind: "To present mathematics as a method of thinking to be acquired and used by the student."¹

In the organization of materials for the textbook, the authors state the specific aims in the story of each unit in order that both the student and the teacher may know exactly what understandings will be gained. "The elements of each unit and the instructional materials lead to an understanding of the core thought or central theme of the unit. In each unit, mathematical concepts are introduced as needed, but only such as contribute definitely to the understanding and mastery of the unit."²

Recurrent items throughout the book include: (1) Recall Drills; Review; Summary of Unit; Supplementary Projects; and Tests of Understanding.

Contents of The New Trend Arithmetic Analyzed.

Distribution of Contents. Table 24 on the next page

¹Op. cit., p. ii.

²Op. cit., p. ii.

Table 24. Distribution of Contents in The New Trend Arithmetic. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per-Cent	Business Forms	Charts Diagrams Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total No. of Illustrations
Chapter											
Introductory Chapter	11	3.1	0	0	0	0	0	0	0	0	0
I How Numbers Are Compared	41	11.6	0	0	0	13	13	1	1	1	29
II New Problems in Geometry	25	7.1	0	9	9	0	0	19	5	2	44
III Business Forms and Methods	37	10.5	9	6	0	5	0	0	0	1	21
IV Using Formulas and Measurements	45	12.4	0	16	7	9	3	10	3	1	49
V Using Arithmetic in the Home	23	6.5	4	0	0	2	2	0	0	1	9
VI Investing Time and Money	27	7.6	0	3	0	0	0	0	0	1	4
VII Using Equations to Solve Problems	31	8.8	0	3	0	10	0	0	0	1	14
VIII Insurance: Kinds, Costs, and Uses	25	7.1	0	3	0	1	0	0	0	2	6
IX State, Local, and Federal Taxes	25	7.1	0	0	0	1	4	0	0	1	6
X Experimenting with Triangles	37	10.5	0	2	3	1	1	17	14	2	40
XI The Remedy is Practice	27	7.6	0	3	2	19	0	0	0	1	25
Total	354	99.9	13	45	21	61	23	47	23	14	247

shows how the 354 pages of the New Trend Arithmetic are distributed. Chapter IV, dealing with formulas and measurement, contains the greatest allotment of pages — 45 pages or 12.4%. Chapter V, Using Arithmetic in the Home, contains the fewest pages in the book — a total of 23 pages, or 6.5%. The eleven pages of the Introductory Chapter consist of diagnostic tests. Chapter XI contains review examples and problems of work studied in previous chapters.

Illustrations Used. Preceding each chapter, there is a full page drawing in black and white, bearing some significance on the story which introduces each chapter. The other illustrations are distributed throughout the book as indicated on Table 24. It can be seen that chapters II and IV have by far the greatest number of illustrations.

Instructional Aids. Both an answer book and a workbook are available as materials supplementary to the textbook.

Analysis of Contents. A study of Table 25 shows that the sequence of the various totals revert to a familiar pattern. Reading the totals vertically from top to bottom in the right hand column of figures, it can be seen that with one exception, the order of figures coincides with the order of topics. Of the 3799 problems and examples, 1499 are Fundamental problems and examples; 1059 are problems and examples dealing with Daily Applications of Arithmetic; 475 are Geometry and

Table 25. Analysis of Contents in The New Trend Arithmetic. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	52	1	223	25	301
Fractions	122	0	295	6	423
Decimals	91	0	110	7	208
Denominate Numbers	42	1	97	66	206
Percentage	48	6	236	71	261
Total	355	8	961	175	1499
Daily Applications of Arithmetic					
Business Transactions	0	18	13	92	123
Graphs	0	6	2	24	32
Insurance	0	3	13	85	101
Interest and Banking	12	19	173	71	275
Investments	0	17	27	99	143
Problems of the Home	0	14	12	95	121
Taxes	0	12	150	102	264
Total	12	89	390	568	1059
Geometry and Measurement					
Angles	3	3	73	3	82
Area	0	3	31	51	85
Construction and Measurement	18	0	132	7	157
Geometric Figures	0	6	0	4	10
Perimeter	0	0	41	12	53
Volume	0	6	29	53	88
Total	21	18	306	130	475
Indirect Measurement					
Congruence and Similarity	0	0	31	2	33
Ratio and Proportion	0	14	102	18	134
Right Triangle	0	1	16	13	30
Scale Drawing	0	0	2	3	5
Square Root	0	0	94	7	101
Total	0	15	245	43	303
Algebra					
Equations	0	0	295	116	411
Formulas	4	0	26	22	52
Total	4	0	321	138	463
Grand Total	392	130	2223	1054	3799

Measurement problems and examples; 303 deal with Indirect Measurement; and 463 deal with Algebra. Every sub-topic is represented as is indicated by the horizontal columns of figures.

Organization and Arrangement of Subject Matter. The eleven chapters into which the material of this textbook is divided, represents a recent revision of material in line with the newest trends in arithmetic teaching. The contents of this revised textbook do not constitute a radical departure from the original plan "but does accept as a working policy the outcomes of scientific research and the procedures that have met and are meeting with demonstrated success in the classroom."¹

The authors aim to meet the expanding interests of the pupils of eighth grade age. They feel that pupils should receive information, understanding and a systematic practice in the fundamental operations for the improvement and maintenance of skills. To achieve these aims, they have provided at the beginning of the textbook an Introductory Chapter containing many diagnostic tests. At the close of the text, Chapter XI provides remedial practice material for those who are weak in the fundamental processes. Also, distributed throughout the book, are frequent sets of "Limbering Up"

¹Op. Cit., p. iii.

exercises, cumulative tests, mixed problems, and vocabulary checks. All practice exercises are graded so as to provide for the varying abilities of the pupils.

Contents of Mathematics in Action Analyzed.

Distribution of Contents. Two unit titles depart from the usual wording of the titles familiar to the ear in the analysis of books thus far: (1) "Geometry in Industry" and (2) "Positive and Negative Numbers." Both units contain the fewest number of pages — 16 and 13 pages respectively. The unit on Measurement is allotted the greatest number of pages — 46 pages or 13.3%, and next the unit on Percentage and Its Uses with 40 pages, or 11.6%. Table 26 on the next page will show in what manner the remaining units have been divided with respect to page allotments.

Illustrations Used. As Table 26 on the next page will reveal, the total number of illustrations represents a comparatively large figure — 303 separate illustrations distributed among 345 pages. From a glance at table 26 it can be easily seen that the unit on Measurement contains the largest number of illustrations and that the unit on Geometry and Industry contains the second largest number of illustrations. The fewest number of illustrations is found in the chapter on Insurance and in the chapter on Positive and Negative numbers. A study of this table will reveal in what matter the various

Table 26. Distribution of Contents in Mathematics in Action. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per-Cent	Business Forms	Charts Diagrams Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total No. of Illustrations
Unit											
I Review of the Fundamentals	38	11.0	0	1	0	2	14	2	0	5	24
II Geometry in Industry	16	4.6	0	12	23	0	0	7	0	0	42
III Formulas	24	7.0	0	2	2	11	1	0	5	2	23
IV Mensuration	46	13.3	0	11	20	7	0	7	11	13	69
V Percentage and Its Uses	40	11.6	2	1	0	12	2	0	0	6	23
VI Insurance	28	8.1	0	1	0	2	1	0	0	3	7
VII Banks and Banking	38	11.0	12	4	0	7	0	0	0	4	27
VIII Taxes	26	7.5	0	0	0	9	2	0	0	3	14
IX Investments	30	8.7	2	3	0	3	0	0	0	5	13
IX X Equations	28	8.1	2	3	0	20	0	0	0	0	21
XI Indirect Measurement	18	5.2	0	6	4	7	0	7	5	2	31
XII Positive and Negative Numbers	13	3.8	0	3	0	3	3	0	0	0	9
Total	345	99.9	16	45	49	83	23	23	21	43	303

illustrations are distributed.

Instructional Aids. The answer book is incorporated into the text itself and is found at the end of the book. There appears to be no other material supplementary to the textbook.

Analysis of Contents. All the sub-topics have been considered in this textbook as is indicated by Table 27 on the following page. The Fundamentals again command the greatest number of examples as well as the largest total figure in the horizontal totals columns. Daily Applications of Arithmetic occupy the usual second place with a total of 845 required problems and examples plus 70 optional ones. The third largest total figure is represented by the problems and examples dealing with Algebra, namely, 624 problems and examples. There are 541 problems and examples dealing with Geometry and Measurement, and 405 examples and problems dealing with Indirect Measurement.

Organization and Arrangement of Subject Matter. There are twelve units of work contained in Mathematics In Action. The central purpose of the textbook as explained by the authors is "to convey to pupils an understanding and appreciation of the role of mathematics in many phases of modern life, and to develop some degree of skill in solving the real problems that arise. The fundamental skills are treated as means

Table 27. Analysis of Contents in Mathematics in Action. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	61	2	180	51	294
Fractions	33	3	287	57	380
Decimals	39	0	243	20	302
Denominate Numbers	71	0	111+32	89	271+32
Percentage	11	7	264	88	370
Total	215	12	1085+32	305	1617+32
Daily Applications of Arithmetic					
Business Transactions	0	0	83+15	67+4	150+19
Graphs	0	0	0	27	27
Insurance	6	6	24	60	96
Interest and Banking	8+1	4	188	67+6	267+7
Investments	0	10	20+5	93+10	123+15
Problems of the Home	0	0	8	13	21
Taxes	0	14	89+15	58+14	161+29
Total	14+1	34	412+35	385+34	845+70
Geometry and Measurement					
Angles	0	0	12	0	12
Area	0	0	43	100+9	143+9
Construction and Measurement	4	0	100+6	9	113+6
Geometric Figures	0	0	80	0	80
Perimeter	0	0	25	24	49
Volume	0	0	58	86+40	144+40
Total	4	0	318+6	219+49	541+55
Indirect Measurement					
Congruence and Similarity	0	0	19	0	19
Ratio and Proportion	31	9	193	30	263
Right Triangle	0	0	0	31	31
Scale Drawing	0	0	0	9	9
Square Root	22	0	61	0	83
Total	53	9	273	70	405
Algebra					
Equations	24	6	331	96	457
Formulas	12	8	114	33	167
Total	36	14	445	129	624
Grand Total	322+1	69	2533+73	1108+83	4032+157

*Numbers preceded by a plus sign represent supplementary examples.

of solving problems."¹

Each of the twelve units follows a pedagogical pattern similar to that of Unit I. In Unit I, the fundamentals of previous grades are reviewed by diagnostic tests keyed to cross references in the back of the text for re-instruction and practice. Problems which require the use of two or more skills are reviewed consistently and skills that present some degree of difficulty are retaught, as for example, rounding off numbers and comparison of numbers. Tables of measure and graphs are reviewed and the unit is rounded out by four pages of miscellaneous review, survey, and tests.

Unit II offers review and extension of the concepts of elementary plane geometry.

Unit III takes up the study of the formula and stresses the following points: (1) that a formula is only another way to write a rule of computation; (2) that a formula provides a desirable technique by which to indicate what is to be found, what is given, and how a problem is to be solved; and (3) that one master formula suffices for the solution of all problems of a given class."² Optional material, along with reviews, tests, and a cumulative review are included in this unit.

Measurement is studied in Unit IV.

¹Op. cit., pp. iii - iv.

²Op. cit., pp. iii - iv.

Unit V is devoted to percentage and its use. The two master formulas $P = RB$ and $i = prt$ are used.

Units VI - IX present in integrated form the important information and instruction relative to the study of insurance, banking, taxes, and investments. Each of these topics is broken down into sub-units to facilitate instruction and gradation. The contents within these units receive emphasis rather than the skills in computation. Hospital insurance, income taxes, unemployment insurance, and federal old-age insurance are among some of the topics included in these units.

Units X - XII are primarily exploratory previews of topics which are studied in detail in subsequent grades.

Contents of Mathematics and Life Analyzed.

Distribution of Contents. The 445 pages of this textbook are distributed compactly into seven long chapters — each all inclusive and independent of the others. A glance at Table 28 on the next page will show the distribution of the contents to be as follows, in order of chapters: Chapter I, 55 pages, or 12.3%; Chapter II, 72 pages or 16.1%; Chapter III, 64 pages, or 14.3%; Chapter IV, 80 pages or 17.9%; Chapter V, 88 pages or 19.7%; Chapter VI, 68 pages, or 15.2%; and Chapter VII, 20 pages or 4.5%. Chapter V, Community Planning, which deals with measurement and construction contains the greatest allotment of pages.

Unit 7 is devoted to the study of the two

main types of the English verb: the finite and the non-finite.

Unit 8 - The English verb system is presented in a

systematic and logical way, starting from the basic

types, namely, the finite and the non-finite.

is a very important part of the English grammar and

is a very important part of the English grammar and

is a very important part of the English grammar and

is a very important part of the English grammar and

is a very important part of the English grammar and

is a very important part of the English grammar and

is a very important part of the English grammar and

1. The English verb system and its structure.

Classification of the English verb. The English verb is

divided into two main types: the finite and the non-finite.

The finite verb is the one which can stand alone as a

predicate in a sentence. It is the one which is inflected

for person, number, tense, mood and voice. It is the one

which is used to form the main clause of a sentence.

The non-finite verb is the one which cannot stand alone

as a predicate. It is the one which is used to form

the subordinate clauses of a sentence. It is the one

which is used to form the infinitive, the gerund and the

participle.

Table 28. Distribution of Contents in Mathematics and Life. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per-Cent	No. of Business Forms	Charts Diagrams Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total No. of Illustrations
Chapter											
I Mathematics and the Community	55	12.3	0	10	11	30	1	2	1	6	61
II The Merchant and the Community	72	16.1	4	3	0	26	3	0	1	8	45
III The Bank and the Community	64	14.3	17	6	0	20	2	1	0	3	49
IV Business and the Community	30	17.9	4	7	0	0	1	0	0	13	25
V Community Planning	88	19.7	1	12	27	27	26	4	8	20	103
VI The Community and Its Neighbors	68	15.2	1	11	4	20	2	1	1	10	50
VII Making Sure you Re-Member	20	4.5	0	4	6	11	2	1	0	0	24
Total	447	100.0	27	53	48	133	15	13	23	45	357

Illustrations Used. The illustrations found in this textbook are numerous, colorful, varied, and interesting. At the beginning of the textbook, and introducing Chapter I, is a page and a half drawing in color. Other chapters are preceded by a half page drawing in color. Interspersed here and there throughout the book is the comic-strip-type of illustration in black and white. All told there are 357 illustrations. Table 28 on the previous page shows that Chapter V, on Community Planning, commands the greatest number of illustrations. Of the 103 illustrations found within this chapter, one is a business form; 12 are charts, tables or diagrams; 27 are geometric forms; 26 are directed problems; 4 are graphs; 8 are directed activities; 20 are trigonometric and geometric uses; and 5 are miscellaneous pictures. The range of distribution of the remaining illustrations varies from 24 illustrations allotted to Chapter VII and 61 illustrations allotted to Chapter I.

Instructional Aids. In addition to the textbook itself, there is available to the teacher, a workbook entitled, "Self-Help, Mathematics Work-book II", and a manual called, Teacher's Guidebook, Mathematics and Life, Book II. An answer book is contained within the manual.

Analysis of Contents. That this textbook contains a profuse number of problems and examples can easily be deducted from the figures quoted in Table 29 on the following page.

Table 29. Analysis of Contents in Mathematics and Life. Number of Examples. Number of Problems

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	238	6	352	50	646
Fractions	205	14	820	7	1046
Decimals	133	19	487	36	675
Denominate Numbers	53	18	226	44	341
Percentage	47	5	430	80	562
Total	676	62	2315	217	3270
Daily Applications of Arithmetic					
Business Transactions	0	21	64	145	230
Graphs	1	6	31	11	49
Insurance	0	3	7	105	115
Interest and Banking	0	20	144	116	280
Investments	0	5	9	41	55
Problems of the Home	0	4	0	166	170
Taxes	0	2	14	96	112
Total	1	61	269	680	1011
Geometry and Measurement					
Angles	1	14	19	17	51
Area	3	20	50	92	165
Construction and Measurement	1	1	100	39	141
Geometric Figures	1	3	38	18	60
Perimeter	0	7	5	18	30
Volume	2	20	33	63	118
Total	8	65	245	247	565
Indirect Measurement					
Congruence and Similarity	0	2	44	16	62
Ratio and Proportion	0	2	50	52	104
Right Triangle	0	0	7	33	40
Scale Drawing	1	7	36	1	45
Square Root	3	0	83	1	87
Total	4	11	220	103	338
Algebra					
Equations	6	0	99	40	145
Formulas	0	0	3	0	3
Total	6	0	102	40	148
Grand Total	695	199	3151	1287	5332

There is a sum total of 5332 problems and examples printed in the text. The numerous drill and practice exercises as well as the tests in fundamentals, furnish about three-fifths of this total, or 3270 problems and examples. Another fifth of the total is supplied by the problems and examples concerned with Daily Applications of Arithmetic — in all — 101 problems and examples. The remaining fifth is derived from problems and examples in Geometry and Measurement, Indirect Measurement, and Algebra — or 565, 338, and 148 problems and examples, respectively.

Organization and Arrangement of Subject Matter. The central theme of this book is the mathematics of the community. The mathematical processes are grouped around the activities and interests of the community. Stores and banks, insurance, loan associations, taxes, community planning, and various methods of transportation and communication furnish the social settings in which mathematics is presented. Material from the fields of arithmetic, geometry, and algebra is found at work in most of these activities.

The point of view is consistently that of social mathematics rather than of purely computational arithmetic. The point of view of the consumer is kept in the foreground in the introductions throughout the book. Since all pupils are consumers it is the aim of the book to help them become intelligent consumers.

The seven chapters which make up Mathematics and Life are: Chapter I, Mathematics and the Community; Chapter II, The Merchant and the Community; Chapter III, The Bank and the Community; Chapter IV, Business and the Community; Chapter V, Community Planning; Chapter VI, The Community and Its Neighbors; and Chapter VII, Making Sure You Remember.

The first chapter includes a review and reteaching of the ideas and skills taught through Grade Seven. The Review Tests and the Self-Help Tests and Practice are integrated with Chapter I and constitute a part of the review program. Chapters II through Chapter VI contain new material and each chapter ends with a two-page "Checking Up" exercise for review. The final chapter reviews the work of the year and contains exercises that are keyed by page numbers to the book to facilitate review and study.

Contents of Mathematics At Your Service Analyzed

Distribution of Contents. Unlike any other textbook in this study, Mathematics At Your Service is really a combination of two books in one. As Table 30 on the next two pages will show, the text is divided into "Eighth Year - First Half," and "Eighth Year - Second Half." Both sections are not only complete books in themselves, but the contents in each section are similar. A study of Table 30 will reveal the similarity in the titles of the units. The page allotment in each

Table 30. Distribution of Contents in Mathematics At Your Service. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Busi- ness Forms	Charts, Diagrams, Tables	Geo- metric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geomet- ric Uses	Misc. Pictures	No. of Illustrations
<u>Eighth Year - First Half</u>											
I. The World of Geometry	27	14.1	0	13	19	0	0	8	0	0	40
II. The World of Home Arithmetic	16	8.4	0	8	0	0	2	0	0	0	10
III. The World of Business Arithmetic	18	9.4	0	6	0	0	7	0	0	0	13
IV. The World of Geometry	16	8.4	0	2	34	0	0	0	0	1	40
V. The World of Algebra	10	5.2	0	3	0	0	0	0	0	1	4
VI. The World of Algebra	29	15.2	0	8	14	0	0	0	1	1	24
VII. The World of Protective Arithmetic	14	7.3	0	1	0	0	0	0	0	0	1
VIII. The World of Records	13	6.8	6	4	0	0	0	0	0	0	10
IX. Diagnostic Tests and Drills on Elementary Problems	7	3.7	0	0	0	0	0	0	0	0	0
X. Drill on Problems	5	2.6	0	0	0	0	0	0	0	0	0
XI. Diagnostic and Remedial Material on Fundamentals	36	18.9	0	0	0	0	0	0	0	0	0
Total	191	100.0	6	45	67	0	9	17	1	3	= 148
<u>Eighth Year - Second Half</u>											
I. The World of Counting and Measurement	16	7.9	0	11	4	0	0	0	0	0	15
II. The World of Geometry	29	14.4	0	8	16	0	0	9	4	0	37
III. The World of Business Arithmetic	19	9.4	2	9	0	0	0	0	0	1	3
IV. The World of Money	13	6.4	0	2	0	0	19	0	0	0	20
V. The World of Graphs	20	9.9	0	1	0	0	0	14	3	0	24
VI. The World of Geometry	25	12.4	0	7	0	1	0	0	0	0	1
VII. The World of Algebra	17	8.4	0	0	0	1	0	7	0	0	14
VIII. The World of Geometry	12	5.9	0	3	3	0	0	0	0	0	0
IX. Diagnostic Tests and Drills on Elementary Problems	7	3.5	0	0	0	0	0	0	0	0	0
X. Drills on Problems	5	2.5	0	0	0	0	0	0	0	0	0
XI. Diagnostic and Remedial Materials in Fundamentals	25	12.4	0	0	0	0	0	0	0	0	0
XII. General Review of Geometry	2	1.0	0	0	18	0	0	0	0	0	18
XIII. Know Your Money	12	5.9	0	0	0	0	0	0	0	4	4
Total	202	100.0	2	41	41	2	19	30	7	5	= 147

Table 20. Distribution of Contents in Mathematics At Your Service. The number of pages, the percentage, the number of business forms, charts, diagrams, tables, geometric forms, directed problems, number of graphs, directed activities, trigonometric and geometric uses, miscellaneous pictures, total number of illustrations.

Unit	Chapter or Title of Unit	No. of Pages	Per Cent	Busi-ness Forms	Charts, Diagrams, Tables	Geo-metric Forms
First Year - First Half						
I.	The World of Geometry	27	14.1	0	15	12
II.	The World of Home Arithmetic	18	8.4	0	8	0
III.	The World of Business Arithmetic	18	8.4	0	6	0
IV.	The World of Geometry	18	8.4	0	2	24
V.	The World of Algebra	10	5.2	0	3	0
VI.	The World of Algebra	22	11.2	0	8	14
VII.	The World of Protective Arithmetic	14	7.3	0	1	0
VIII.	The World of Records	15	6.8	0	4	0
IX.	Diagnostic Tests and Drills	7	3.7	0	0	0
X.	Elementary Problems	5	2.6	0	0	0
XI.	Drills on Problems	5	2.6	0	0	0
XII.	Diagnostic and Remedial Material on Fundamentals	20	10.0	0	0	0
Total		191	100.0	0	45	67
Second Year - Second Half						
I.	The World of Counting and Measurement	18	7.9	0	11	4
II.	The World of Geometry	22	14.4	0	8	16
III.	The World of Business Arithmetic	12	6.4	2	9	0
IV.	The World of Money	12	6.4	0	12	0
V.	The World of Graphs	20	9.9	0	1	0
VI.	The World of Geometry	22	12.4	0	7	0
VII.	The World of Algebra	17	8.4	0	0	0
VIII.	The World of Geometry	12	6.2	0	3	5
IX.	Diagnostic Tests and Drills	7	3.5	0	0	0
X.	Elementary Problems	5	2.5	0	0	0
XI.	Drills on Problems	5	2.5	0	0	0
XII.	Diagnostic and Remedial Material in Fundamentals	22	12.4	0	0	0
XIII.	General Review of Geometry	2	1.0	0	0	18
XIV.	Know Your Money	12	6.2	0	0	0
Total		202	100.0	2	41	41

section differs only by eleven pages.

The first half of the textbook is divided into eleven units, and the second half of the text is divided into thirteen units. In both sections, the units are comparatively short — as some units contain as few as two to fourteen pages. Unit XI, in Section I, contains 36 pages, the greatest number of pages allotted to any unit in the book.

Illustrations Used. The majority of the illustrations found in this textbook are of the comic-strip type and used for the express purpose of appealing to the pupils' sense of imagination. However, the comic-strip type is not used to the exclusion of other forms of illustrations, for a liberal number of graphs, charts, and pictures also hold their own in the pages of this text. A perusal of Table 30 on the previous two pages will show that the units on geometry claim the largest number of illustrations, while the units dealing with diagnostic and remedial materials claim none whatsoever. Few illustrations are found in the units dealing with money and algebra.

Instructional Aids. There is no available material supplementary to this textbook.

Analysis of Contents. In the compilation of figures for Mathematics At Your Service, both sections of the textbook were considered as one. Therefore the totals in Table 31 on

the following page represent the sum of the problems and examples contained in both the first half and the second half of the textbook. There is a grand total of 3511 problems and examples plus 131 optional one included in the text. Of this total 1941 are Fundamentals; 683 are Daily Applications of Arithmetic; 570 are Geometry and Measurement problems and examples; 26 are problems and examples dealing with Indirect Measurement, and 291 are problems and examples in Algebra. Ratio and Proportion, the Right Triangle, and Scale Drawings, as used in indirect measurement, are not included in the totals of problems and examples.

Organization and Arrangement of Subject Matter. The material in this textbook is arranged in units, and each unit is divided into lessons of four to five pages in length. Each unit contains a review and a test. There is an absence of the traditional practice and drill exercises. A great portion of the text is devoted to reading material. The authors say "this makes for cultural rather than tool interest."¹

The material throughout the text is graded so that the problems reach down to the slow child's limited ability and extend up to the bright child's questioning intellect. For additional motivation, most of the material is presented in story form.

The units of algebra stress the language aspect and the

¹Op. cit., p. iv.

Table 31. Analysis of Contents in Mathematics At Your Service. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	116	6	654+24	41	817+24
Fractions	166	0	456	6	628
Decimals	42	20	200	62	324
Denominate Numbers	0	1	0	9+1	10+1
Percentage	48	0	114	0	162
Total	372	27	1424+24	118+1	1941+25
Daily Applications of Arithmetic					
Business Transactions	0	5	132	133+6	270+6
Graphs	0	5	0	57+4	62+4
Insurance	0	0	12	36+6	48+6
Interest and Banking	0	16	43	167+6	226+6
Investments	0	0	0	4	4
Problems of the Home	0	14	0	59+10	73+10
Taxes	0	0	0	0	0
Total	0	40	187	456+31	683+31
Geometry and Measurement					
Angles	6	0	94+4	7+2	107+6
Area	2	0	92+1	7	101+1
Construction and Measurement	16	1	136+42	12	165+42
Geometric Figures	5	0	75	31	101
Perimeter	1	2	48	1	52
Volume	3	1	37+4	3	44+4
Total	33	4	482+51	51+2	570+53
Indirect Measurement					
Congruence and Similarity	0	0	13+4	1+1	14+5
Ratio and Proportion	0	0	0	0	0
Right Triangle	0	0	0	0	0
Scale Drawing	0	0	0	0	0
Square Root	0	0	12	0	12
Total	0	0	25+4	1+1	26+5
Algebra					
Equations	25	7	159+6	69+7	260+13
Formulas	5	0	11	15+4	31+4
Total	30	7	170+6	84+11	291+17
Grand Total	435	78	2288+85	710+46	3511+131

*Numbers preceded by a plus sign represent supplementary examples.

function concept plays a significant role as algebra, arithmetic and geometry are fused throughout the text.

Contents of Learning Arithmetic Analyzed

Distribution of Contents. The 241 pages of Learning Arithmetic are divided into eighteen short and comparatively evenly distributed units. The length of the units vary from twelve to sixteen pages each, and so arranged as to be completed at two week intervals. A study of Table 32 on the following page will show the distribution of pages for each unit of the text.

Illustrations Used. There are located in Learning Arithmetic a total of 228 various illustrations consisting of diagrams, charts, tables, business forms, directed problems and miscellaneous pictures. There are several small colored illustrations here and there throughout the text, and a one full page colored drawing which precedes Chapter I. The two units containing the largest number of illustrations are Unit XVI — Square Root, Ratio, and Proportion, and Unit XVII, Similar Triangles, Areas and Volumes. The chapters on Stocks and Bonds, and the Cost of Local and State Government, contain the fewest illustrations. Table 32 on the following page shows the comparative distribution of the 228 illustrations in the various units.

Table 32. Distribution of Contents in Learning Arithmetic. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per- Cent	Business Forms	Charts, Diagrams Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total No. of Illustrations
Unit											
I Whole Numbers, Decimals, and Fractions	13	5.4	0	2	0	8	0	0	0	2	12
II Rounded Numbers, Accounts & Records	14	5.8	1	0	0	6	1	0	0	1	9
III Equations. Percentage	12	5.0	0	1	0	16	0	0	0	1	18
IV Percentage	16	6.6	0	1	0	14	1	0	0	2	18
V Family Budgets and Records	12	5.0	1	6	0	3	0	0	0	0	2
VI Home Problems	14	5.8	0	4	0	5	0	0	0	2	11
VII Using Percentage	12	5.0	1	0	0	9	0	0	0	1	11
VIII Interest, Profit and Loss	12	5.0	0	0	0	9	0	0	0	3	12
IX Business Problems: Formulas	16	6.6	1	0	0	15	0	0	0	1	17
X Home Problems. Insurance	12	5.0	0	3	0	2	0	0	0	3	8
XI Lumber Measure. Compound Interest	14	5.8	0	1	0	9	0	3	0	1	14
XII Corporations, Stocks and Bonds	12	5.0	0	1	0	2	0	0	0	1	4
XIII Stocks and Bonds: Graphs	16	6.6	0	3	0	8	3	0	0	2	16
XIV Cost of Local and State Governments	12	5.0	0	0	0	2	0	0	0	2	4
XV Federal Taxes. Scale Drawing	14	5.8	0	2	0	7	0	0	0	3	13
XVI Square Root. Ratio and Proportion	12	5.0	0	1	0	17	0	0	1	1	20

Table 32. (continued)

Title of Chapter or Unit	No. of Pages	Per- Cent	Business Forms	Charts Diagrams Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total No. of Illustrations
XVII Similar Triangles. Areas and Volumes	12	5.0	0	1	0	6	0	6	6	0	23
XVIII The Metric System: Review	16	6.6	0	3	0	1	0	0	0	2	6
Total	241	100.0	4	29	5	139	5	9	7	30	= 228

Instructional Aids. For material supplementary to the textbook, there is available (1) an Answer Book, (2) a Teacher's Manual, and (3) a workbook called Essential Drill and Practice in Arithmetic.

Analysis of Contents. Although there are only 241 pages in the textbook, the number of problems and examples found within these pages represents a large total by comparison. There is a grand total of 3466 problems and examples. Once again, the sub-totals in the Fundamentals columns represent large figures which, when totalled, results in 2249 fundamental problems and examples. This indicates consistent practice drill and testing of the fundamentals throughout the text. It is interesting to note at this point, that with the exception of the fundamentals, no tests include examples dealing with the remaining four topics. Also, as Table 33 on the following page will disclose, there are no problems or exercises allotted to the topic of Angles or Geometric Figures, and only one problem represents Congruence and Similarity.

Organization and Arrangement of Subject Matter. Many units but short units — that appears to be the philosophy of the authors of Learning Arithmetic. The reason is to allow a proportionate and adequate amount of time to the various topics which should be covered at this level. Consequently, there are eighteen short units, each one covering approximately two week's work. The requirements of the most recent

Table 33. Analysis of Contents in Learning Arithmetic. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	15	0	174	14	203
Fractions	161	1	656	34	852
Decimals	152	4	292	42	490
Denominate Numbers	0	19	20	41	80
Percentage	18	12	485	109	624
Total	346	36	1627	240	2249
Daily Applications in Arithmetic					
Business Transactions	0	30	46	148	224
Graphs	0	0	0	24	24
Insurance	0	6	13	25	44
Interest and Banking	0	10	46	113	169
Investments	0	1	0	85	86
Problems of the Home	0	9	0	138	147
Taxes	0	3	15	39	57
Total	0	59	120	572	751
Geometry and Measurement					
Angles	0	0	0	0	0
Area	0	11	6	29	46
Construction and Measurement	0	0	0	29	29
Geometric Figures	0	0	0	0	0
Perimeter	0	0	0	13	13
Volume	0	7	0	45	52
Total	0	18	6	116	140
Indirect Measurement					
Congruence and Similarity	0	0	0	1	1
Ratio and Proportion	0	1	64	29	94
Right Triangle	0	1	5	24	30
Scale Drawing	0	0	0	6	6
Square Root	0	0	41	0	41
Total	0	2	110	60	172
Algebra					
Equations	0	0	100	13	113
Formulas	0	0	4	37	41
Total	0	0	104	50	154
Grand Total	346	115	1967	1038	3466

Table 33. Analysis of Contents in Learning Arithmetic. Number of Examples
Number of Problems.

Topics	Examples Problems	Examples Problems	Examples Problems	Total
Percentages	18	18	405	431
Nominate Numbers	0	18	20	38
Decimals	182	282	42	490
Fractions	181	282	24	487
Whole Numbers	12	0	14	308
Foundamentals				
Total	345	38	1227	2440
Applications in Arithmetic	0	30	48	234
Business Transactions	0	0	0	0
Graphs	0	0	0	0
Insurance	0	0	0	0
Interest and Banking	0	10	48	158
Investments	0	1	0	1
Problems of the Home	0	2	138	140
Taxes	0	2	38	40
Total	0	32	120	152
Geometry and Measurement	0	0	0	0
Angles	0	11	8	19
Area	0	0	0	0
Construction and Measurement	0	0	0	0
Geometric Figures	0	0	0	0
Perimeter	0	0	13	13
Volume	0	7	42	49
Total	0	18	6	140
Indirect Measurement	0	0	0	0
Comparison and Similarity	0	1	24	25
Ratio and Proportion	0	1	24	25
Right Triangle	0	0	8	8
Scale Drawing	0	0	0	0
Square Root	0	0	41	41
Total	0	2	110	112
Algebra	0	0	100	100
Equations	0	0	27	27
Formulas	0	0	41	41
Total	0	0	164	164
Grand Total	345	38	1227	2440

investigations and the courses of study determine the placement of topics and the gradation of subject matter. Throughout the units, constant stress is placed upon accuracy in computation rather than upon speed. A reference to Table 33 will show the order in which the units are arranged for the titles of the units are indicative of the subject matter to be taught.

Contents of Making Sure of Arithmetic Analyzed

Distribution of Contents. Table 34 on the next page shows how a total of 321 pages is distributed among the eleven chapters of Making Sure of Arithmetic. Chapter I, dealing with whole numbers and fractions, has been allotted 17.8% of the pages of the text - a total of 57 pages. Percentagewise, Chapter II commands the second largest total of pages, namely, 14% or 45 pages. The third chapter, entitled "The World We Live In," commands 35 pages or 10.9%. The eleventh chapter, called "A New Way of Using Arithmetic," contains the fewest pages. "Earning a Living," the sixth chapter, contains only 17 pages. The remaining chapters consist of 23 to 32 pages each. A reference to Table 34 will show how these pages are apportioned.

Illustrations Used. This textbook is generously supplied with excellent photographs pertinent to the topic and the chapter in which they have been placed. The five

Table 34. Distribution of Contents in Making Sure of Arithmetic. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total Number of Illustrations
Chapter											
I. Whole Numbers and Fractions	57	17.8	0	13	0	1	0	1	0	16	31
II. Percentage	45	14.0	0	5	5	8	3	0	0	8	29
III. Measuring Surfaces	32	10.0	0	3	26	13	0	1	11	9	63
IV. The World We Live In	35	10.9	0	10	0	1	3	1	1	24	40
V. Measuring Solids	25	7.8	0	0	17	7	0	0	9	7	40
VI. Earning a Living	17	5.3	0	0	0	1	4	1	2	7	15
VII. Money and Interest	24	7.5	7	5	0	0	1	0	0	5	18
VIII. Simple Ways of Using Geometry	23	7.1	0	24	8	3	0	0	10	3	48
IX. Borrowing and Investing Money	23	7.1	4	7	0	3	0	0	0	4	18
X. Sharing Risks and Benefits	26	8.1	0	4	0	0	1	0	0	6	11
XI. A New Way of Using Arithmetic	14	4.4	0	1	0	11	0	0	0	0	12
Total	321	100.0	11	72	56	48	12	4	33	89	= 325

Table 1. Distribution of Contents in Making Sure of Arithmetic. The number of pages, the percentage, the number of business forms, charts, diagrams, tables, geometric forms, directed problems, number of graphs, directed activities, trigonometric and geometric uses, miscellaneous pictures, total number of illustrations.

Chapter	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometric Forms
I. Whole Numbers and Fractions	57	17.8	10	15	0
II. Percentage	48	14.0	0	3	3
III. Measuring Surfaces	32	10.0	0	3	28
IV. The World We Live In	35	10.9	0	10	0
V. Measuring Solids	35	7.8	0	0	17
VI. Earning a Living	17	5.2	0	0	0
VII. Money and Interest	24	7.3	1	3	0
VIII. Simple Plans of Using Geometry	23	7.1	0	24	8
IX. Measuring and Investing Money	23	7.1	4	7	0
X. Simple Plans and Problems	26	8.1	0	4	0
XI. Review and of Using Arithmetic	14	4.4	0	1	0
Total	351	100.0	11	73	36

full-page photographs within the text, are indicative of discriminating choice for they portray so vividly pictures that would be difficult to visualize from mere descriptions. For example, the photograph about the New York Stock Exchange on page 264 presents a typical scene unknown to the average eighth grade pupil, and one which would be difficult to visualize by him. Table 34 shows how the 325 various illustrations are distributed among the eleven chapters. Reading from left to right, the horizontal Totals columns at the bottom of Table 34, it can be seen that of the 325 illustrations, 11 are business forms; 72 are charts, diagrams and tables; 56 are geometric forms; 48 are directed problems; 12 are graphs; 4 are directed activities; 33 are trigonometric and geometric uses; and 89 are miscellaneous pictures. Interpreting the vertical Totals columns, Table 34 shows that Chapter III, "Measuring Surfaces," contains the greatest number of illustrations, or 63 illustrations. Another chapter dealing with geometry, namely, Chapter VIII, contains the second largest number of illustrations, or 48 illustrations.

Instructional Aids. The following material is available as supplementary to the textbook: (1) Teacher's Guide for Making Sure of Arithmetic - 256 pages; (2) Answers for Making Sure of Arithmetic; (3) Suggested Visual Aids, Supplementary

121-page photographs within the text, are indicative of
discriminating choice for they portray so vividly pictures
that would be difficult to visualize from mere descriptions.
For example, the photograph about the New York Stock Exchange
on page 204 presents a typical scene unknown to the average
eighth grade pupil, and one which would be difficult to

visualize by him. Table 34 shows how the 325 various illus-
trations are distributed among the eleven chapters. Reading

from left to right, the horizontal Totals columns at the
bottom of Table 34, it can be seen that of the 325 illus-
trations, 11 are business forms; 72 are charts, diagrams
and tables; 50 are geometric forms; 48 are directed prop-
lems; 12 are graphs; 4 are directed activities; 33 are trig-

onometric and geometric uses; and 89 are miscellaneous
pictures. Interpreting the vertical Totals columns, Table
34 shows that Chapter III, "Measuring Surfaces," contains the
greatest number of illustrations, or 63 illustrations.

Another chapter dealing with geometry, namely, Chapter VIII,
contains the second largest number of illustrations, or 48
illustrations.

Instructional Aids. The following material is available

as supplementary to the textbook: (1) Teacher's Guide for
Making Use of Arithmetic - 250 pages; (2) Answers for Making
Use of Arithmetic; (3) Suggested Visual Aids, supplementary

Exercises, and Achievement Tests which are contained in the Teacher's Guide and (4) Making Sure of Arithmetic Workbook for Grade Eight - 128 pages.

Analysis of Contents. By consulting Table 35 on the following page, it can be seen from the horizontal totals columns, that the grand total of 4073 problems and examples is made up of 98 test examples; 145 test problems, 2405 examples in exercises; and 1425 problems in exercises. On the other hand, the vertical column, on the right, shows that of the 4073 problems and examples, 2463 deal with Fundamentals; 643 deal with Daily Applications of Arithmetic; 493 deal with Geometry and Measurement; 230 deal with Indirect Measurement; and the remaining 244 problems and examples are concerned with Algebra.

Organization and Arrangement of Subject Matter. The authors of this textbook have used the chapter form for the organization of their material. The first chapter begins with a reteaching section. The authors insist on the word "reteaching" instead of "review" because the topics, although they may appear familiar, are actually presented in a more mature fashion. Common and decimal fractions are stressed in this first chapter.

Chapter II presents a redevelopment of percentage.

Exercises, and Achievement Tests which are contained in the
Teacher's Guide and (ii) Making Sure of Arithmetic Workbook
for Grade Eight - 128 pages.

Analysis of Contents. By consulting Table I on the
following page, it can be seen from the horizontal totals
columns, that the grand total of 4073 problems and examples
is made up of 98 test examples; 145 test problems, 2102
examples in exercises; and 1425 problems in exercises. On
the other hand, the vertical column, on the right, shows
that of the 4073 problems and examples, 2403 deal with Teacher-
mentals; 613 deal with Daily Applications of Arithmetic;
493 deal with Geometry and Measurement; 230 deal with In-
direct Measurement; and the remaining 244 problems and
examples are concerned with Algebra.

Organization and Arrangement of Subject Matter. The
authors of this textbook have used the chapter form for the
organization of their material. The first chapter begins
with a teaching section. The authors insist on the word
"teaching" instead of "review" because the topics, although
they may appear familiar, are actually presented in a more
mature fashion. Common and decimal fractions are stressed
in this first chapter.

Chapter II presents a redevelopment of percentages.

Table 35. Analysis of Contents in Making Sure of Arithmetic. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	2	10	482	63	557
Fractions	22	2	581	18	623
Decimals	27	9	400	46	482
Denominate Numbers	1	13	67	129	210
Percentage	18	6	390	177	591
Total	70	40	1920	433	2463
Daily Applications of Arithmetic					
Business Transactions	0	16	0	108	124
Graphs	0	0	0	10	10
Insurance	0	5	0	48	53
Interest and Banking	0	10	57	75	142
Investments	0	19	28	87	134
Problems of the Home	0	0	0	93	93
Taxes	0	7	23	57	87
Total	0	57	108	478	643
Geometry and Measurement					
Angles	0	2	28	8	38
Area	0	11	25	145	181
Construction and Measurement	0	16	1	65	82
Geometric Figures	0	0	21	29	50
Perimeter	0	3	7	36	46
Volume	0	9	10	77	96
Total	0	41	92	360	493
Indirect Measurement					
Congruence and Similarity	0	0	0	7	7
Ratio and Proportion	8	2	140	40	150
Right Triangle	0	0	6	9	15
Scale Drawings	0	0	1	14	15
Square Root	11	0	42	0	43
Total	19	2	139	70	230
Algebra					
Equations	9	5	123	68	205
Formulas	0	0	23	16	39
Total	9	5	146	84	244
Grand Total	98	145	2405	1425	4073

Table 15. Analysis of Government in the State of Michigan, 1960-61
 by type of activity.

Legislation		Administration		Judicial		Total	
Number	Value	Number	Value	Number	Value	Number	Value
10	400	10	400	10	400	30	1200
20	800	20	800	20	800	60	2400
30	1200	30	1200	30	1200	90	3600
40	1600	40	1600	40	1600	120	4800
50	2000	50	2000	50	2000	150	6000
60	2400	60	2400	60	2400	180	7200
70	2800	70	2800	70	2800	210	8400
80	3200	80	3200	80	3200	240	9600
90	3600	90	3600	90	3600	270	10800
100	4000	100	4000	100	4000	300	12000
110	4400	110	4400	110	4400	330	13200
120	4800	120	4800	120	4800	360	14400
130	5200	130	5200	130	5200	390	15600
140	5600	140	5600	140	5600	420	16800
150	6000	150	6000	150	6000	450	18000
160	6400	160	6400	160	6400	480	19200
170	6800	170	6800	170	6800	510	20400
180	7200	180	7200	180	7200	540	21600
190	7600	190	7600	190	7600	570	22800
200	8000	200	8000	200	8000	600	24000
210	8400	210	8400	210	8400	630	25200
220	8800	220	8800	220	8800	660	26400
230	9200	230	9200	230	9200	690	27600
240	9600	240	9600	240	9600	720	28800
250	10000	250	10000	250	10000	750	30000
260	10400	260	10400	260	10400	780	31200
270	10800	270	10800	270	10800	810	32400
280	11200	280	11200	280	11200	840	33600
290	11600	290	11600	290	11600	870	34800
300	12000	300	12000	300	12000	900	36000
310	12400	310	12400	310	12400	930	37200
320	12800	320	12800	320	12800	960	38400
330	13200	330	13200	330	13200	990	39600
340	13600	340	13600	340	13600	1020	40800
350	14000	350	14000	350	14000	1050	42000
360	14400	360	14400	360	14400	1080	43200
370	14800	370	14800	370	14800	1110	44400
380	15200	380	15200	380	15200	1140	45600
390	15600	390	15600	390	15600	1170	46800
400	16000	400	16000	400	16000	1200	48000
410	16400	410	16400	410	16400	1230	49200
420	16800	420	16800	420	16800	1260	50400
430	17200	430	17200	430	17200	1290	51600
440	17600	440	17600	440	17600	1320	52800
450	18000	450	18000	450	18000	1350	54000
460	18400	460	18400	460	18400	1380	55200
470	18800	470	18800	470	18800	1410	56400
480	19200	480	19200	480	19200	1440	57600
490	19600	490	19600	490	19600	1470	58800
500	20000	500	20000	500	20000	1500	60000
510	20400	510	20400	510	20400	1530	61200
520	20800	520	20800	520	20800	1560	62400
530	21200	530	21200	530	21200	1590	63600
540	21600	540	21600	540	21600	1620	64800
550	22000	550	22000	550	22000	1650	66000
560	22400	560	22400	560	22400	1680	67200
570	22800	570	22800	570	22800	1710	68400
580	23200	580	23200	580	23200	1740	69600
590	23600	590	23600	590	23600	1770	70800
600	24000	600	24000	600	24000	1800	72000
610	24400	610	24400	610	24400	1830	73200
620	24800	620	24800	620	24800	1860	74400
630	25200	630	25200	630	25200	1890	75600
640	25600	640	25600	640	25600	1920	76800
650	26000	650	26000	650	26000	1950	78000
660	26400	660	26400	660	26400	1980	79200
670	26800	670	26800	670	26800	2010	80400
680	27200	680	27200	680	27200	2040	81600
690	27600	690	27600	690	27600	2070	82800
700	28000	700	28000	700	28000	2100	84000
710	28400	710	28400	710	28400	2130	85200
720	28800	720	28800	720	28800	2160	86400
730	29200	730	29200	730	29200	2190	87600
740	29600	740	29600	740	29600	2220	88800
750	30000	750	30000	750	30000	2250	90000
760	30400	760	30400	760	30400	2280	91200
770	30800	770	30800	770	30800	2310	92400
780	31200	780	31200	780	31200	2340	93600
790	31600	790	31600	790	31600	2370	94800
800	32000	800	32000	800	32000	2400	96000
810	32400	810	32400	810	32400	2430	97200
820	32800	820	32800	820	32800	2460	98400
830	33200	830	33200	830	33200	2490	99600
840	33600	840	33600	840	33600	2520	100800
850	34000	850	34000	850	34000	2550	102000
860	34400	860	34400	860	34400	2580	103200
870	34800	870	34800	870	34800	2610	104400
880	35200	880	35200	880	35200	2640	105600
890	35600	890	35600	890	35600	2670	106800
900	36000	900	36000	900	36000	2700	108000
910	36400	910	36400	910	36400	2730	109200
920	36800	920	36800	920	36800	2760	110400
930	37200	930	37200	930	37200	2790	111600
940	37600	940	37600	940	37600	2820	112800
950	38000	950	38000	950	38000	2850	114000
960	38400	960	38400	960	38400	2880	115200
970	38800	970	38800	970	38800	2910	116400
980	39200	980	39200	980	39200	2940	117600
990	39600	990	39600	990	39600	2970	118800
1000	40000	1000	40000	1000	40000	3000	120000

Chapter III contains a heavily illustrated section on surface measures.

Five chapters of the text are devoted to useful applications of arithmetic in socially valuable situations. These chapters are concerned with such topics as occupations, discounts, profit, margin, and expenses, interest, budgets, checks, savings, borrowing, installment buying, investments, etc.

Two chapters deal with geometry which includes a reteaching of ratio and the development of such new topics as proportion, indirect measurements, square root, and the right triangle rule.

The final chapter is an introduction to algebra.

Contents of Junior Life Mathematics Analyzed.

Distribution of Contents. Table 36 on the following page shows a total of 343 pages for Junior Life Mathematics. The longest chapter, which is Chapter VIII, "Using Geometry in Practical Measurements," contains 46 pages or 13.4% of the entire text. It is interesting to note that Chapter VIII is a continuation of Chapter VII which contains 42 pages, thereby giving a total of 88 pages to the study of Geometry in Practical Measurements. The shortest chapter is Chapter I which introduces geometry to the pupil.

Chapter III contains a heavily illustrated section on

surface measures.

Five chapters of the text are devoted to useful appli-

cations of arithmetic in socially valuable situations.

These chapters are concerned with such topics as occupations,

discounts, profits, margin, and expenses, interest, budgets,

checks, savings, borrowing, installment buying, investments,

etc.

Two chapters deal with geometry which includes a

reaching of ratio and the development of such new topics

as proportion, indirect measurements, square root, and the

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Contents of Junior Life Mathematics Analyzed.

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the entire text. It is interesting to note that Chapter VIII

is a continuation of Chapter VII which contains 42 pages;

thereby giving a total of 88 pages to the study of geometry

in Practical Measurements. The shortest chapter is Chapter

I which introduces geometry to the pupil.

Table 36. Distribution of Contents in Junior Life Mathematics. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts Diagrams, Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total Number of Illustrations
Chapter											
I. Learning More About Geometry	15	4.4	0	2	12	0	0	11	4	6	35
II. Checking Up on Your Mathema- tical Tools	33	9.6	1	5	0	3	5	0	0	6	20
III. Doing Business With a Book	41	12.0	7	5	0	10	0	0	0	4	26
IV. Learning How to Invest Money	35	10.2	2	5	0	1	2	0	0	6	16
V. Protecting your Possessions	33	9.6	1	6	0	1	2	0	0	8	18
VI. Formulas and Equations	33	9.6	0	7	0	15	2	0	0	5	29
VII. Using Geometry in Practical Measurements	42	12.2	0	5	0	0	0	12	9	4	30
VIII. Using Geometry in Practical Measurements	46	13.4	0	4	0	3	0	8	16	2	33
IX. Financing Government	24	7.0	0	4	0	0	1	2	0	5	12
X. Using Arith- metic in Business	41	12.0	3	0	3	5	0	0	3	6	20
Total	343	100.0	14	43	15	38	12	33	32	52 =	239

Table 30. Distribution of Contents in Junior Life Mathematics. The number of pages, the percentage, the number of business forms, charts, diagrams, tables, geometric forms, directed problems, number of graphs, directed activities, trigonometric and geometric uses, miscellaneous pictures, total number of illustrations.

Chapter	No. of Pages	Percentage	Business Forms	Charts	Diagrams	Tables	Geometric Forms
I. Learning More About Geometry	12	4.4	0	3	0	0	0
II. Checking Up on Your Math—What You Know	35	9.6	1	3	0	0	0
III. Doing Business with a Book	41	12.0	7	3	0	0	0
IV. Learning How to Invest Money	35	10.2	12	3	0	0	0
V. Protecting Your Possessions	35	9.6	11	3	0	0	0
VI. Working and Learning	35	9.6	10	7	0	0	0
VII. Using Geometry in Practical Measurements	42	12.2	10	3	0	0	0
VIII. Using Geometry in Practical Measurements	46	13.4	10	4	0	0	0
IX. Working with Government	24	7.0	10	4	0	0	0
X. Using Arithmetic in Business	41	12.0	3	0	0	0	3
Total	345	100.0	64	43	0	0	12

Illustrations Used. Of the 239 illustrations, Chapters I and VIII contain the greatest number and Chapters IV and IX contain the fewest. A study of Table 36 will show how the various kinds of illustrations were distributed throughout the various chapters.

Instructional Aids. The answer book is the only material available supplementary to the textbook.

Analysis of Contents. There is a total of 4443 required problems and examples, in Junior Life Mathematics, plus 42 optional problems and examples. Reading from left to right in the horizontal totals column at the bottom of Table 37 on the following page, it can be seen that of the 4443 problems and examples in the text, there are 2453 test examples; 213 test problems; 888 examples in exercises; and 889 problems in exercises; and 42 optional problems and examples. Perusing the right hand vertical column, a familiar line-up is indicated. The Fundamentals with 2248 problems and examples contribute the largest figure toward the grand total. The 872 problems and examples in Algebra contribute the second largest figure; the Daily Applications of Arithmetic, with 734 problems and examples, had the third largest total. Geometry and Measurement, and Indirect Measurement have totals of 358 and 231 problems and examples respectively.

Illustrations Used. Of the 239 illustrations, Chapters

I and VIII contain the greatest number and Chapters IV and IX contain the fewest. A study of Table 30 will show how the various kinds of illustrations were distributed throughout the various chapters.

Instructional Aids. The answer book is the only

material available supplementary to the textbook.

Analysis of Contents. There is a total of 4443 ex-

amples, problems and exercises, in Junior High Mathematics, plus 42 optional problems and exercises. Reading from left to right in the horizontal totals column at the bottom of Table 37 on the following page, it can be seen that of the 4443 problems and exercises in the text, there are 2423 text exercises; 213 text problems; 888 exercises in exercises; and 889 problems in exercises; and 42 optional problems and exercises. Pertaining to the right hand vertical column, a family line-up is indicated. The Fundamentals with 2248 problems and exercises contribute the largest figure toward the grand total. The 872 problems and exercises in Algebra contribute the second largest figure; the Daily Applications of Arithmetic, with 734 problems and exercises, had the third largest total. Geometry and Measurement, and Indirect Measurement have totals of 358 and 231 problems and exercises respectively.

Table 37. Analysis of Contents, in Junior Life Arithmetic. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	755	3	5	25	788
Fractions	442	0	0	0	442
Decimals	260	0	8	0	268
Denominate Numbers	154	2	0	21	177
Percentage	450	28	65	30	573
Total	2061	33	78	76	2248
Daily Applications of Arithmetic					
Business Transactions	0	34	44	93+13	171+13
Graphs	0	3	14	2	19
Insurance	0	14	31	74+9	119+9
Interest and Banking	0	5	57	44	106
Investments	0	30	23	145+8	198+8
Problems of the Home	1	6	3	19	29
Taxes	0	18	12	62	92
Total	1	110	184	439+30	734+30
Geometry and Measurement					
Angles	0	0	11	0	11
Area	0	5	18	28	51
Construction and Measurement	16	1	76	33	126
Geometric Figures	0	0	29	0	29
Perimeter	0	3	7	5	15
Volume	0	20	17	89	126
Total	16	29	158	155	358
Indirect Measurement					
Congruence and Similarity	0	23	7	23	53
Ratio and Proportion	0	3	31	17	51
Right Triangle	0	1	12	8	21
Scale Drawing	0	0	3	1	4
Square Root	0	1	91+12	10	102+12
Total	0	28	144+12	59	231+12
Algebra					
Equations	345	9	215	126	695
Formulas	30	4	77	34	145
Fundamental Processes and Principles	0	0	32	0	32
Total	375	13	324	160	872
Grand Total	2453	213	888+12	889+30	4443+42

*Numbers preceded by a plus sign represent supplementary examples.

Table IV. Analysis of Contents, in Junior High Arithmetic. Number of Examples. Number of Problems.

Topics		Tests		Exercises		Total
Examples		Problems		Problems		
Fundamentals						
Whole Numbers	755	3	5	25	78	788
Fractions	442	0	0	0	0	442
Decimals	280	0	8	0	8	288
Denominate Numbers	164	2	0	21	21	177
Percentage	450	28	65	20	83	553
Total		33	73	46	154	1206
Daily Applications of Arithmetic						
Business Transactions	0	24	44	93+12	171+12	
Graphic	0	3	14	2	19	
Insurance	0	14	21	74+8	119+8	
Interest and Banking	0	8	27	44	106	
Investments	0	30	23	145+8	198+8	
Problems of the Home	1	6	2	19	29	
Taxes	0	16	12	22	32	
Total		110	184	433+30	724+30	
Geometry and Measurement						
Angles	0	0	11	0	11	
Area	0	2	18	28	31	
Construction and Measurement	0	1	76	22	128	
Geometric Figures	0	0	29	0	29	
Perimeter	0	2	7	8	18	
Volume	0	20	17	39	126	
Total		23	128	127	288	
Indirect Measurement						
Convergence and Similarity	0	23	7	22	32	
Ratio and Proportion	0	2	21	17	31	
Right Triangle	0	1	12	8	21	
Scale Drawing	0	0	3	1	4	
Square Root	0	1	21+12	10	102+12	
Total		26	144+12	60	232+12	
Algebra						
Equations	245	9	215	126	695	
Formulas	30	4	77	34	145	
Fundamental Processes and Principles	0	0	22	0	22	
Total		13	314	160	587	
Grand Total		212	688+12	683+30	1443+42	

Numbers preceded by a plus sign represent supplementary examples.

*Numbers preceded by a plus sign represent supplementary examples.

Organization and Arrangement of Subject Matter. The material in this book is organized according to the chapter method. All ten chapters of this text emphasize largely the social rather than the mathematical concepts of arithmetic, for it is the intention of the authors to teach the pupils the mathematics of life.

Geometry is introduced in Chapter I; Chapter II reviews in detail the fundamentals of arithmetic. Chapters III, IV, and V teach the concepts of banking, investments, and insurance. The formula and equation are taught in Chapter VI. Practical applications of geometry are presented in both Chapters VII and VIII. Financing our government is the theme of Chapter IX. The last chapter takes up arithmetic as used in the business world.

Contents of Fundamental Mathematics Analyzed

Distribution of Contents. Table 38 on the following page reveals that the 351 pages divided among ten units is the distribution pattern of Fundamental Mathematics. The first three chapters of the text are the longest, each containing 43, 41, and 49 pages, respectively. The study of the Right Triangle, Chapter VII, is the shortest chapter.

Illustrations Used. Directed problems occur more frequently than any other type of illustration. As it was

15-5

Organization and Arrangement of Subject Matter. The material in this book is organized according to the chapter method. All ten chapters of this text emphasize largely the social rather than the mathematical concepts of arithmetic, for it is the intention of the authors to teach the pupils the mathematics of life.

Geometry is introduced in Chapter I; Chapter II reviews in detail the fundamentals of arithmetic. Chapters III, IV, and V teach the concepts of banking, investments, and insurance. The formula and equation are taught in Chapter VI. Practical applications of geometry are presented in both Chapters VII and VIII. Financing our government is the theme of Chapter IX. The last chapter takes up arithmetic as used in the business world.

Contents of Fundamental Mathematics Analyzed

Distribution of Contents. Table 38 on the following page reveals that the 321 pages divided among ten units is the distribution pattern of Fundamental Mathematics. The first three chapters of the text are the longest, each containing 43, 41, and 49 pages, respectively. The study of the Right Triangle, Chapter VII, is the shortest chapter. Illustrations Used. Directed problems occur more frequently than any other type of illustration. As it was

Table 38. Distribution of Contents in Fundamental Mathematics. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total Number of Illustrations
Chapter											
I. The Age of Measurement	43	12.2	0	18	2	4	2	0	0	13	39
II. Ways of Using Per Cents	41	11.7	1	6	0	8	3	0	0	5	23
III. Growing Up in Mathematics	49	14.0	0	11	5	5	6	0	0	6	23
IV. Some Important Ideas of Geometry	37	10.5	0	6	17	23	0	0	13	9	68
V. Using Scale Drawings	31	8.8	0	13	0	3	1	0	8	6	31
VI. Arithmetic in Business	39	11.1	4	0	0	10	1	0	0	6	21
VII. A Study of the Right Triangle	25	7.1	0	6	5	4	0	2	5	3	25
VIII. Savings and Security	31	8.8	2	4	0	1	0	0	0	5	12
IX. The Measurement of Volume	27	7.7	0	0	14	13	0	5	2	5	39
X. Home and Community	28	8.0	0	10	0	3	1	0	0	6	20
Total	351	99.9	7	64	43	74	14	7	28	64	= 301

Table 35. Distribution of Contents in Fundamental Mathematics. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Chapter	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometric Forms
I. The Age of Measurement	43	12.2	200	183	2
II. Ways of Using Per Cent	41	11.7	201	6	0
III. Growing in Mathematics	49	14.0	200	116	2
IV. Some Important Ideas of Geometry	37	10.3	200	6	17
V. Using Geometric Drawings	31	8.8	100	133	0
VI. Arithmetic in Business	39	11.1	200	0	0
VII. A Study of the Right Triangle	25	7.1	200	6	2
VIII. Savings and Security	31	8.8	200	4	0
IX. The Measurement of Volume	27	7.7	200	0	14
X. Home and Community	28	8.0	200	102	0
Total	351	99.9	7	42	43

explained previously, the directed problems include such problems as are explained in detailed steps and set off by lines apart from other material on the page. Charts, diagrams, and tables, as well as miscellaneous pictures are used generously throughout the text. Table 38, on the preceding page, shows that Unit IV - a unit on geometry - contains considerably more illustrations than any other unit.

Instructional Aids. An Answer Book, a Teacher's Manual, and a workbook are available materials supplementary to the textbook.

Analysis of Contents. There is a total of 3445 problems and examples in this textbook. Of this total, 1908 are Fundamentals; 405 are Daily Applications of Arithmetic; 404 deal with Geometry and Measurement; 376 are concerned with Indirect Measurement; and 352 deal with Algebra. Table 39 on the next page shows that there are more examples in the text than there are problems. The grand totals in the horizontal column at the bottom of Table 39 indicates 577 test examples and 1937 examples found in exercises, as compared against 179 test problems and 752 problems found in exercises - a total of 2614 examples and 931 problems.

Organization and Arrangement of Subject Matter. Fundamental Mathematics is divided into ten units each of which

explained previously, the directed problems include such problems as are explained in detailed steps and set off by lines apart from other material on the page. Charts, diagrams, and tables, as well as miscellaneous pictures are used generously throughout the text. Table 38, on the preceding page, shows that Unit IV - a unit on Geometry - contains considerably more illustrations than any other unit. Instructional Aids. An Answer Book, a Teacher's Manual, and a workbook are available materials supplementary to the textbook.

Analysis of Contents. There is a total of 3415 problems and examples in this textbook. Of this total, 1908 are Fundamentals; 405 are Daily Applications of Arithmetic; 404 deal with Geometry and Measurement; 376 are concerned with Indirect Measurement; and 322 deal with Algebra. Table 39 on the next page shows that there are more examples in the text than there are problems. The grand totals in the horizontal column at the bottom of Table 39 indicates 277 test examples and 1937 examples found in exercises, as compared against 179 test problems and 725 problems found in exercises - a total of 2014 examples and 931 problems.

Organization and Arrangement of Subject Matter. Fundamental Mathematics is divided into ten units each of which

Table 39. Analysis of Contents in Fundamental Mathematics. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	152	0	533	0	685
Fractions	80	0	209	27	316
Decimals	73	0	141	1	215
Denominate Numbers	0	0	0	9	9
Percentage	151	36+2	397	99+4	683+6
Total	456	36+2	1280	136+4	1908+6
Daily Application of Arithmetic					
Business Transactions	30	26	83+1	65+2	204+3
Graphs	0	0	6	34+2	40+2
Insurance	0	3	9	30+6	42+6
Interest and Banking	0	0	0	0	0
Investments	0	10	5	25+1	40+1
Problems of the Home	0	4	0	50+1	54+1
Taxes	0	3	5	17+5	25+5
Total	30	46	108+1	221+17	405+18
Geometry and Measurement					
Angles	0	0	45+1	23+6	68+7
Area	0	2	15+9	18+7	35+16
Construction and Measurement	9	34	81+1	16	140+1
Geometric Figures	0	0	25	1	26
Perimeter	0	0	12	13	25
Volume	0	14	42+6	54+6	110+12
Total	9	50	220+17	125+19	404+36
Indirect Measurement					
Congruence and Similarity	0	1	5	35	41
Ratio and Proportion	6	19	34	53	112
Right Triangle	37	8	8	16+1	69+1
Scale Drawing	0	15	0	43+6	58+6
Square Root	12	0	60	24	96
Total	55	43	107	171+7	376+7
Algebra					
Equations	21	4	193	21+1	239+1
Formulas	6	0	29	78	113
Total	27	4	222	99+1	352+1
Grand Total	577	179+2	1937+18	752+48	3445+68

*Numbers preceded by a plus sign represent supplementary examples.

Table 39. Analysis of Contents in Fundamental Mathematics. Number of Examples. Number of Problems.

Topics	Examples Problems	Tests	Examples Problems	Examples Problems	Total
Percentage	151	38+3	337	99+4	682+5
Denominate Numbers	0	0	0	0	0
Decimals	75	0	141	1	216
Fractions	80	0	209	27	316
Whole Numbers	182	0	533	0	835
Fundamentals					
Total	486	38+3	1280	123+4	1902+5
Daily Application of Arithmetic					
Taxes	0	3	3	17+5	22+5
Problems of the Home	0	4	0	50+1	54+1
Investments	0	10	3	25+1	40+1
Interest and Banking	0	0	0	0	0
Insurance	0	3	3	30+0	43+0
Graphs	0	0	3	34+3	40+3
Business Transactions	30	28	83+1	65+0	204+3
Geometry and Measurement					
Volume	0	14	42+0	34+3	110+13
Perimeter	0	0	13	13	26
Geometric Figures	0	0	35	1	36
Construction and Measurement	3	34	51+1	15	160+1
Area	0	3	15+0	18+7	36+10
Angles	0	0	45+1	23+3	68+4
Total	3	50	220+17	122+19	404+30
Indirect Measurement					
Square Root	12	0	60	24	96
Scale Drawing	0	15	0	45+0	60+0
Right Triangle	37	3	3	16+1	63+1
Ratio and Proportion	3	19	34	23	112
Congruence and Similarity	0	1	2	25	41
Total	35	43	107	117+7	372+7
Algebra					
Formulas	8	0	30	70	116
Equations	21	4	103	21+1	239+1
Total	29	4	233	91+1	382+1
Grand Total	877	170+2	1937+18	752+48	3443+68

Numbers preceded by a plus sign represent supplementary examples.

discusses a series of related topics. The authors recognize measurement as an important factor in the modern world and introduce their text with a unit called "The Age of Measurement." For example, in this unit, the following topics are discussed: "High Precision Accuracy of Measurement;" "Understanding Measurement;" "Measurement in the Shop: Fractions;" "Using Tenths in Measurement;" "Round Numbers;" "Decimals in the Shop;" "The Metric System."

Unit II deals with percentage and its various concepts.

Unit III, entitled "Growing Up in Mathematics," teaches relationship with respect to graphs, formulas, and area.

Unit IV teaches important basic concepts of geometry concerning shape, size, position, area, and volume. Construction is also included.

Unit V takes up scale drawing and integrates it with the study of ratio and similarity and the use of the similar triangle.

Unit VI incorporates business arithmetic.

Unit VII teaches the right triangle and the "Law of Pythagoras."

Unit VIII takes up such topics as "Compound Interest," "Insurance," "Provisions of Old Age Income," "Stocks and Bonds."

Unit IX. Volume is taught in this unit, and includes the rectangular solid, the cube, the cylinder, the cone, the

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Unit V takes up scale drawing and integrates it with

the study of ratio and similarity and the use of the similar

triangle.

Unit VI incorporates business arithmetic.

Unit VII teaches the right triangle and the "Law of

Sines."

Unit VIII takes up such topics as "Compound Interest,"

"Insurance," "Provisions of Old Age Income," "Stocks and

Bonds."

Unit IX. Volume is taught in this unit, and includes

the rectangular solid, the cube, the cylinder, the cone, the

pyramid, and the sphere.

Unit X is called "Home and Community." It takes up "Budgets," "Foods and Gardens," "Installment Buying," and "Interest and Loans."

Unit XI contains practice exercises called "Achieving Accuracy in Computation."

At the close of each unit there is a "Final Test" on the concepts and techniques developed within the unit.

Contents of Practical Junior Mathematics Analyzed.

Distribution of Contents. The 409 pages of this textbook are divided into nineteen relatively short chapters, ranging from nine pages to forty-two pages. A study of Table 40 on the next page will show what page allotments are given the respective chapters. The authors say the object of the numerous chapters is to permit a selection of topics in accordance with local needs.

Illustrations Used. A total of 270 illustrations is contained in this text of which 12 are full page plates. The illustrations are not numbered but a short legend occurs beneath most of the illustrations. The greatest number of illustrations is found in Chapter XIV and in Chapter IV. A study of Table 40 will show the distribution of all the illustrations.

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Unit X is called "Home and Community." It takes up "Budgets," "Foods and Gardens," "Installation Buying," and "Interest and Loans."

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contained in this text of which 12 are full page plates. The illustrations are not numbered but a short legend occurs beneath most of the illustrations. The greatest number of illustrations is found in Chapter XIV and in Chapter IV. A study of Table 40 will show the distribution of all the illustrations.

Table 40. Distribution of Contents in Practical Junior Mathematics. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	Total Number of Illustrations
Chapter											
I. Formulas	32	7.8	0	2	4	0	4	0	6	11	27
II. Improvement Tests	10	2.4	0	1	0	0	3	0	0	2	6
III. Equations	24	5.9	0	2	0	8	0	0	0	0	10
IV. Measurements	40	9.8	0	2	4	14	0	0	16	6	42
V. Some Important Industries	10	2.4	0	0	0	0	1	0	0	6	7
VI. Percentage	42	10.3	0	2	0	10	0	0	0	7	19
VII. Commercial Banks	33	8.1	8	1	0	3	0	0	0	5	17
VIII. Thrift and Compound Interest	16	3.9	0	4	0	1	3	0	0	2	10
IX. Installment Buying	18	4.4	0	1	0	0	0	0	0	1	2
X. Stocks and Bonds	24	5.9	0	2	0	1	0	0	0	5	8
XI. Insurance	26	6.4	0	2	0	3	1	0	0	4	10
XII. Taxes	16	3.9	0	1	0	0	2	0	0	2	5
XIII. Metric System	9	2.2	0	2	0	0	0	0	1	1	4
XIV. Studying Geometric Figures	34	8.3	0	4	13	16	0	0	25	8	66
XV. Ratio and Proportion	12	2.9	0	5	0	4	0	0	0	0	9
XVI. Similar Triangles	22	5.4	0	4	0	11	1	0	3	0	19
XVII. Square Root	12	2.9	0	3	0	2	0	0	1	0	6
XVIII. Positive and Negative Numbers	20	4.9	0	1	0	0	1	0	0	1	3
XIX. Review	9	2.2	0	0	0	0	0	0	0	0	0
Total	409	100.0	8	39	21	73	16	0	52	61	= 270

Table IV. Distribution of Contents in Practical Junior Mathematics. The number of pages, the percentage, the number of exercises, the number of diagrams, tables, geometric forms, directed problems, number of graphs, directed activities, trigonometric and geometric uses, miscellaneous pictures, total number of illustrations.

	No. of Pages	Percentage	No. of Exercises	No. of Diagrams	No. of Tables	No. of Geometric Forms	No. of Directed Problems	No. of Graphs	No. of Directed Activities	No. of Trigonometric and Geometric Uses	No. of Miscellaneous Pictures	Total Number of Illustrations
I. Preliminary	32	7.8	0	11	2	4						
II. Improvement Tests	10	2.4	0	2	1	0						
III. Applications	24	5.9	0	0	2	0						
IV. Measurements	40	9.8	0	0	2	0						
V. Some Important Industries	10	2.4	0	0	0	0						
VI. Percentages	42	10.3	0	0	2	0						
VII. Commercial Banks	32	7.8	0	0	1	0						
VIII. Simple and Compound Interest	16	3.9	0	0	4	0						
IX. Real Estate Buying	18	4.4	0	0	1	0						
X. Stocks and Bonds	24	5.9	0	0	2	0						
XI. Insurance	26	6.4	0	0	2	0						
XII. Taxes	16	3.9	0	0	1	0						
XIII. Metric System	9	2.2	0	0	2	0						
XIV. Solving Geometric Figures	24	5.9	0	0	4	0						
XV. Ratio and Proportion	12	2.9	0	0	2	0						
XVI. Similar Figures	22	5.4	0	0	4	0						
XVII. Square Root	12	2.9	0	0	2	0						
XVIII. Positive and Negative Numbers	20	4.9	0	0	1	0						
XIX. Review	9	2.2	0	0	0	0						
Total	409	100.0	0	39	31							

Instructional Aids. An answer book and a workbook are available as materials supplementary to the textbook.

Analysis of Contents. Table 41 on the following page shows that there is a total of 3848 problems and examples plus 107 optional problems and examples in this textbook. Fundamentals represent the greatest frequency of problems and examples followed by the other four topics in order of their placement in the chart. A study of Table 41 will indicate the comparative allotment of problems and examples with respect to all the sub-topics.

Organization and Arrangement of Subject Matter. The authors suggest two plans for presenting the material within the 19 chapters of Practical Junior Mathematics. Either plan provides a proper sequence of topics if studied in the order suggested below:

(1) Chapters V, II, VI-IX, I, IV, X, XII, III, XIII, XIX.

(2) Chapters V, II, VI-XII, I, III, IV, XIII-XIX.

The authors feel that the numerous chapters in the text permit a selection of topics in accordance with the needs of the community where this material is taught. There is no intensive treatment of any single subject, but rather the material presented is more or less a course in general mathematics selected from arithmetic, graphs,

Table 41. Analysis of Contents in Practical Junior Mathematics. Number of Examples. Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	115	5	53	28	201
Fractions	125	8	179	5	317
Decimals	62	12	172	8	254
Denominate Numbers	0	3	11	50+5	64+5
Percentage	48	17	351	50+4	496+4
Total	350	45	766	171+9	1332+9
Daily Applications of Arithmetic					
Business Transactions	0	19	118	70+6	207+6
Graphs	0	3	0	46	49
Insurance	0	3	56	65+7	124+7
Interest and Banking	16	19	272	102+5	409+5
Investments	0	5	100	89+7	194+7
Problems of the Home	0	3	13	51+12	67+12
Taxes	0	2	30	63+17	95+17
Total	16	54	589	486+54	1145+54
Geometry and Measurement					
Angles	0	0	20	0	20
Area	10	6	57	47+2	120+2
Construction and Measurement	0	0	27	1	28
Geometric Figures	0	0	20+1	5	25+1
Perimeter	0	0	17	5	22
Volume	0	19	55	112+30	186+30
Total	10	25	196+1	170+32	401+33
Indirect Measurement					
Congruence and Similarity	0	0	30	14+1	44+1
Ratio and Proportion	0	4	93	35	132
Right Triangle	0	1	32	28	61
Scale Drawing	0	1	0	8	9
Square Root	15	0	83	13	111
Total	15	6	238	98+1	357+1
Algebra					
Equations	27	13	359	101+4	500+4
Formulas	1	10	43	59+6	113+6
Total	28	23	452	160+10	613+10
Grand Total	419	153	2191+1	1085+106	3848+107

*Numbers preceded by a plus sign represent supplementary examples.

intuitive geometry, and algebra.

In the study of arithmetic, the informational interpretational, and social aspects are stressed as well as the computation itself.

In geometry, the emphasis is placed on the cultural aspects by showing the relation of geometry to architecture, art, and design.

Where algebra is concerned, emphasis is placed upon the formula and the simple equation with its many applications to arithmetic, practical geometry, and problem solving.

There is a series of 47 Improvement Tests covering whole numbers, fractions, decimals, and percentage. Diagnostic Tests and Problem-solving Tests also occur frequently throughout the text. The material is graded to provide for individual differences, and diagnostic tests indicate the needs of each pupil and give references to suitable remedial practice work.

Contents of Functional Numbers Analyzed.

Distribution of Contents. The 310 pages of Functional Numbers are divided among seven chapters with Chapter V having the greatest number of pages, namely 62 pages or 20% of the text. Table 42 on the following page shows the allocation of pages to each chapter.

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ly throughout the text. The material is graded to provide
for individual differences, and diagnostic tests indicate the
needs of each pupil and give references to suitable remedial
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Table 42. Distribution of Contents in Functional Numbers. The Number of Pages, the Percentage, the Number of Business Forms, Charts, Diagrams, Tables, Geometric Forms, Directed Problems, Number of Graphs, Directed Activities, Trigonometric and Geometric Uses, Miscellaneous Pictures, Total Number of Illustrations.

Title of Chapter or Unit	No. of Pages	Per Cent	Business Forms	Charts, Diagrams, Tables	Geometric Forms	Directed Problems	Graphs	Directed Activities	Trigonometric and Geometric Uses	Misc. Pictures	No. of Illustrations
Chapter											
I. Checking Your Arithmetic	35	11.3	0	3	0	9	8	0	0	5	25
II. Learning About Geometry	50	16.1	0	9	24	23	2	0	24	1	83
III. Protection Today and Tomorrow	54	17.4	0	6	0	6	0	0	0	15	27
IV. Mathematics in Production and Consumption	36	11.6	0	1	0	6	0	0	0	9	16
V. Measurement	62	20.0	0	8	0	15	2	0	0	15	50
VI. The Story of Communication	30	9.7	0	8	0	1	0	0	2	5	16
VII. When the Answer was Wrong	43	13.9	0	7	0	93	1	0	0	1	102
Total	310	100.0	0	42	34	153	13	0	26	51	= 319

Illustrations Used. The illustrative material in this text is numerous. With 310 pages to the text and a total of 319 various illustrations in the text, there is on an average at least one illustration to a page. Table 42 will show in what manner the illustrations occur throughout the text.

Instructional Aids. Functional Numbers contains the following material supplementary to the text: (1) Answers to Functional Numbers (Revised Edition); (2) Guide For Teachers to accompany Functional Numbers; (3) a workbook, "Achieving With Numbers" - Practice Book 8; and (4) Answers to "Achieving With Numbers" - Practice Book 8.

Analysis of Contents. Of the grand total of 4401 problems and examples found in Functional Numbers, 3192 of deal with Fundamentals; 500 of them deal with the Daily Applications of Arithmetic; 331 deal with Geometry and Measurement; 153 deal with Indirect Measurement; and 225 deal with Algebra. Table 43 on the following page shows the distribution of examples and problems with respect to the various sub-topics.

Organization and Arrangement of Subject Matter. The chapter method was used in the organization of the material in Functional Numbers. The first chapter is a review chapter and the last chapter contains keyed material which may be used by those who need help in preventing or correcting errors. The remaining five chapters are written around important

Illustrations Used. The illustrative material in this

text is numerous. With 310 pages to the text and a total of 319 various illustrations in the text, there is on an average at least one illustration to a page. Table 12 will show in what manner the illustrations occur throughout the text.

Instructional Aids. Functional Numbers contains the following material supplementary to the text: (1) Answers to Functional Numbers (Revised Edition); (2) Guide for Teachers to accompany Functional Numbers; (3) a workbook, "Achieving With Numbers" - Practice Book B; and (4) Answers to "Achieving With Numbers" - Practice Book B.

Analysis of Contents. Of the grand total of 1401 problems and examples found in Functional Numbers, 312 of deal with Fundamentals; 500 of them deal with the Daily Applications of Arithmetic; 331 deal with Geometry and Measurement; 123 deal with Indirect Measurement; and 225 deal with Algebra. Table 13 on the following page shows the distribution of examples and problems with respect to the various sub-topics.

Organization and Arrangement of Subject Matter. The chapter method was used in the organization of the material in Functional Numbers. The first chapter is a review chapter and the last chapter contains keyed material which may be used by those who need help in preventing or correcting errors. The remaining five chapters are written around important

Table 43. Analysis of Contents in Functional Numbers. Number of Examples.
Number of Problems.

Topics	Tests		Exercises		Total
	Examples	Problems	Examples	Problems	
Fundamentals					
Whole Numbers	0	2	1066	20	1088
Fractions	0	8	1325	17	1350
Decimals	0	15	359	21	395
Denominate Numbers	7	4	74	52	137
Percentage	13	25	138	46	222
Total	20	54	2962	156	3192
Daily Applications of Arithmetic					
Business Transactions	0	11	3	42	56
Graphs	0	0	23	23	46
Insurance	0	2	18	47	67
Interest and Banking	0	1	23	10	34
Investments	0	13	18	53	84
Problems of the Home	0	6	7	149	162
Taxes	0	7	21	23	51
Total	0	40	113	347	500
Geometry and Measurement					
Angles	0	1	21	0	22
Area	0	11	39	27	77
Construction and Measurement	0	5	75	0	80
Geometric Figures	0	9	62	0	71
Perimeter	0	2	17	20	39
Volume	0	6	12	24	42
Indirect Measurement					
Congruence and Similarity	0	0	18	3	21
Ratio and Proportion	4	0	29	3	36
Right Triangle	0	0	0	0	0
Scale Drawing	0	0	0	5	5
Square Root	0	0	91	0	91
Total	4	0	138	11	153
Algebra					
Equations	39	10	117	18	184
Formulas	2	0	18	21	41
Total	41	10	135	39	225
Grand Total	65	138	3579	624	4401

Table 22. Analysis of Contents in Functional Numbers. Number of Examples.

Topics	Examples Problems	Tests	Examples Problems	Examples Problems	Total
Percentage	13	25	138	48	224
Decompose Numbers	7	4	74	32	117
Decimals	0	15	238	21	259
Fractions	0	8	1328	17	1345
Whole Numbers	0	2	1068	30	1098
Indeterminate	0	0	0	0	0
Total	20	54	2982	158	3140
Problems of the House	0	3	7	148	158
Investments	0	13	18	38	59
Interest and Banking	0	1	28	10	39
Insurance	0	2	19	47	68
Graphs	0	0	28	33	61
Business Transactions	0	17	3	42	62
Daily Applications of Arithmetic	0	0	0	0	0
Taxes	0	7	21	22	50
Total	0	40	172	347	559
Volume	0	8	18	24	50
Perimeter	0	2	17	30	49
Geometric Figures	0	9	32	0	41
Construction and Measurement	0	2	72	0	74
Area	0	11	28	27	66
Angles	0	1	21	0	22
Geometry and Measurement	0	0	0	0	0
Square Root	0	0	91	0	91
Scale Drawing	0	0	0	0	0
Right Triangle	0	0	0	0	0
Ratio and Proportion	4	0	29	2	35
Convergence and Similarity	0	0	18	2	20
Indirect Measurement	0	0	0	0	0
Total	4	0	138	31	173
Formulas	2	0	18	21	41
Equations	39	10	117	18	184
Total	41	10	135	39	225
Grand Total	65	124	3249	524	4062

social experiences and are as follows: Chapter II deals primarily with geometry; Chapter III takes up interest, savings accounts, real estate, insurance, stocks and bonds, property tax, income tax, and budgets; Chapter IV takes up the study of poultry, gas and electricity, water power, oil, wholesale distribution, commission, discount, profit and loss, installment buying, changing prices, and the equation; Chapter V deals with measurement; and Chapter VI takes up communication.

Each chapter contains tests, practice exercises, and keyed remedial material.

The eighth grade level were treated to a greater or lesser degree in each book. Different in its organization is Mathematics at Your Service, in which the material is divided into two parts, namely, Eighth Year-First Half, and Eighth Year-Second Half. The topics taught in each part, however, are very similar. This textbook also may be credited with the greatest number of chapters - twenty-one in all. Everyday Living Mathematics contains a summary at the end of each chapter followed by a test on the chapter and then by a "mastery test" which is a review of the fundamentals. The stepped-up edition of Champion Arithmetic contains the fewest number of chapters, four in all. For some reason the

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savings accounts, real estate, insurance, stocks and bonds;
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wholesale distribution, commission, discount, profit and
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communication.

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keyed remedial material.

Interpretation of the Methods Used in the Organization and Arrangement of the Subject Matter. It is interesting to note at this time that the authors of the twenty-one textbooks analyzed in this study were more or less evenly divided as to their choice of method in presenting the material in their respective books. Eleven of the twenty-one textbooks were analyzed according to the unit method and the other ten textbooks were organized according to the traditional chapter method.

In no two books was the sequence of topics the same, although the seven major phases of mathematics¹ usually taught at the eighth grade level were treated to a greater or lesser degree in each book. Different in its organization is Mathematics At Your Service, in which the material is divided into two parts, namely, Eighth Year-First Half, and Eighth Year-Second Half. The topics taught in each part, however, are very similar. This textbook also may be credited with the greatest number of chapters - twenty-one in all. Everyday Junior Mathematics contains a summary at the end of each chapter followed by a test on the chapter and then by a "mastery test" which is a review of the fundamentals. The stepped-up edition of Champion Arithmetics contains the fewest number of chapters, four in all. For some reason not

¹ See page 55.

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Junior Mathematics contains a summary at the end of each
 chapter followed by a test on the chapter and then by a
 "mastery test" which is a review of the fundamentals. The
 stepped-up edition of Champion Arithmetic contains the fewest
 number of chapters, four in all. For some reason not

explained by the authors, the text begins with Chapter V and ends with Chapter VIII.

Arithmetic We Use introduces each new chapter with an interesting "storified" problem as a means of motivation. Preceding each chapter in The New Mathematics, First Course is an introductory page called "Key Thoughts." This page serves as a sort of preview to the chapter. Mathematics Through Experience introduces the study of equations in its first chapter. Most of the other texts offer this unit in the second half of the eighth grade year.

Mathematics in Action receives separate mention in that the fundamental skills are treated as means of solving problems. Consequently, there are no sets of practice drill exercises in fundamentals.

Each text includes some kind of testing material as a means of evaluation. The various tests include: diagnostic tests, inventory tests, review tests, chapter tests, mastery tests, fundamentals tests, progress tests and in some books - final tests.

The following quotation from Mathematics For Today¹ sums up pointedly what all the authors as a whole strive to achieve through their text:

"Not everyone can come to a full appreciation of the beauty and perfection of mathematics, but neither can we all arrive at a complete appreciation of

¹ Op. cit., p. v.

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Arithmetic We Use introduces each new chapter with an interesting "starred" problem as a means of motivation. Preceding each chapter in The New Mathematics, First Course is an introductory page called "Key Thoughts." This page serves as a sort of preview to the chapter. Mathematics Through Experience introduced the study of equations in its first chapter. Most of the other texts offer this unit in the second half of the eighth grade year.

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"Not everyone can come to a full appreciation of the beauty and perfection of mathematics, but neither can we all arrive at a complete appreciation of

literature, music, painting, sculpture, or architecture. Writing poetry is a gift for the few; everyday reading and writing are indispensable for all. And in the same sense, although we cannot all become mathematical wizards, an ability to use simple mathematics is a necessity for intelligent thinking and communication."

Interpretation of the Types of Illustrations Presented.

An examination of Tables 2, 4, 6, 8, etc., through 42, will show the relative distribution of illustrative material for all the textbooks in this study. Reading up and down the extreme right hand and left hand columns will show the total number of illustrative material for any one chapter or unit. Thus, in Table 2 on page 57, it can be seen that Unit I contains 3 illustrations, Unit II contains 4 illustrations, Unit III contains 13 illustrations, and so on throughout the text. Furthermore, by consulting columns 3 through 10, and reading the figures horizontally, it can be seen what type of illustration each unit contains. Thus, of the 3 illustrations in Unit I, one is a chart, another is a directed problem, and the third is a miscellaneous picture.

Since each textbook varies as to the allotment of pages and to the arrangement of topics, no attempt is made to evaluate any textbook on the basis of the number of illustrations it contains.

It may be of interest to the reader to know that Every-day Junior Mathematics has the greatest number of illustrations with 849 various kinds found throughout the text.

literature, music, painting, sculpture, or architecture. Writing poetry is a gift for the few; everyday reading and writing are indispensable for all. And in the same sense, although we cannot all become mathematical wizards, an ability to use simple mathematics is a necessity for intelligent thinking and communication."

Interpretation of the Types of Illustrations Presented.

An examination of Tables 2, 4, 6, 8, etc., through 12, will show the relative distribution of illustrative material for all the textbooks in this study. Reading up and down the extreme right hand and left hand columns will show the total number of illustrative material for any one chapter or unit. Thus, in Table 2 on page 27, it can be seen that Unit I contains 3 illustrations, Unit II contains 4 illustrations, Unit III contains 13 illustrations, and so on throughout the text. Furthermore, by consulting columns 3 through 10, and reading the figures horizontally, it can be seen what type of illustration each unit contains. Thus, of the 3 illustrations in Unit I, one is a chart, another is a directed problem, and the third is a miscellaneous picture.

Since each textbook varies as to the allotment of pages and to the arrangement of topics, no attempt is made to evaluate any textbook on the basis of the number of illustrations it contains. It may be of interest to the reader to know that Everyday Junior Mathematics has the greatest number of illustrations with 349 various kinds found throughout the text.

Interpretation of the Instructional Aids

Since it is not always possible or practical for the author or authors to include everything within the covers of a textbook, supplementary material under separate cover is in order. Therefore it is interesting to note that of the twenty-one texts analyzed, 18 have answer books, 8 have workbooks, 12 have teacher's guides or manuals, one has a pamphlet entitled "Review Exercises," and one has a reference in its teacher's manual to "Suggested Visual Aids."

The Word Space of Each Text

An examination of Table 44 on pages 149 and 150 will show the comparative size of each textbook as revealed by the distribution of word space and the total number of words devoted to each text. Reading Table 44 from left to right, it can be seen that Practical Mathematics has an average of 12.1 words per line, 28 lines per page, 274 pages of the actual text, 18 chapters, an average of 15.2 pages per chapter, and a total word space of 92,831 words. The total word content of each text was determined by multiplying the average number of words per line by the number of lines per page, and the result multiplied by the total number of pages of actual text. The average number of pages was determined by dividing the total number of pages of actual text by the number of chapters in each book.

The space utilized by illustrative material was considered

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Since it is not always possible or practical for the author or authors to include everything within the covers of a textbook, supplementary material under separate cover is in order. Therefore it is interesting to note that of the twenty-one texts analyzed, 13 have answer books, 8 have workbooks, 12 have teacher's guides or manuals, one has a pamphlet entitled "Review Exercises," and one has a reference in its teacher's manual to "Suggested Visual Aids."

The Word Space of Each Text

An examination of Table II on pages 149 and 150 will show the comparative size of each textbook as revealed by the distribution of word space and the total number of words devoted to each text. Reading Table II from left to right, it can be seen that Practical Mathematics has an average of 12.1 words per line, 30 lines per page, 274 pages of the actual text, 13 chapters, an average of 12.2 pages per chapter, and a total word space of 92,831 words. The total word content of each text was determined by multiplying the average number of words per line by the number of lines per page, and the result multiplied by the total number of pages of actual text. The average number of pages was determined by dividing the total number of pages of actual text by the number of chapters in each book.

The space utilized by illustrative material was considered

Table 44. Distribution of Word Space and the Total Number of Words
Devoted to the Actual Text in the Twenty-One Books Analyzed.

Text- book	Average Number of Words Per Line	Number of Lines Per Page	Total Number of Pages (Actual Text)	Number of Chapters	Average Number of Pages Per Chapter	Total Word Space
1.	12.1	28	274	18	15.2	92831
2.	11.5	40	463	17	28.9	212980
3.	10.2	32	260	10	26.0	84864
4.	9.6	31	293	12	24.4	87197
5.	9.4	31	284	4	71.0	82758
6.	10.8	33	264	8	33.0	94090
7.	10.7	34	323	11	29.4	117507
8.	10.6	32	434	10	43.4	147213
9.	10.0	34	442	11	40.2	150280
10.	10.2	32	444	12	37.0	144921
11.	11.1	34	387	12	32.3	146054
12.	10.6	32	353	11	32.1	119738
13.	10.1	37	345	12	28.8	128927
14.	9.2	32	444	7	63.4	130714
15.	9.5	31	419	21	20.0	123396
16.	9.9	33	241	18	13.4	78735
17.	10.6	33	327	11	29.7	114385
18.	10.7	33	344	10	34.4	121466
19.	10.3	33	360	10	36.0	122364
20.	11.0	33	411	19	21.6	149193
21.	9.1	34	311	8	44.4	96223

Table 44. Distribution of word space and the total number of words revealed to the Actual Text in the Twenty-One Books Analyzed.

Text- book	Average number of words per line	Number of lines per page	Total number of pages (Actual Text)	Number of chapters	Average number of lines per chapter	Total word space
1.	12.1	28	274	18	15.2	92821
2.	11.5	40	453	17	26.6	112080
3.	10.2	32	280	10	28.0	84804
4.	9.8	31	293	12	24.4	67127
5.	9.4	31	284	4	71.0	32758
6.	10.8	32	284	8	35.0	94090
7.	10.7	34	323	11	29.4	117207
8.	10.8	32	434	10	43.4	147213
9.	10.0	34	442	11	40.2	150280
10.	10.2	32	444	12	37.0	144221
11.	11.1	34	387	12	32.2	146084
12.	10.3	32	322	11	29.2	116728
13.	10.1	27	343	12	28.6	128027
14.	9.2	32	441	7	63.0	120714
15.	9.8	31	412	21	20.0	123236
16.	9.9	32	241	18	13.4	78723
17.	10.8	32	327	11	29.7	114382
18.	10.7	32	344	10	34.4	121466
19.	10.3	32	360	10	36.0	127264
20.	11.0	32	411	12	34.2	145112
21.	9.7	34	371	8	46.4	96220

as the equivalent of the printed lines that it would contain in order to establish a total linear space content factor for each text.

The preface, the glossary, the appendix, and the index were not included in the total linear word space since they were given separate consideration under "Supplementary Material" on pages

Ten full pages of print were considered in the estimation of the total word space for each book.

The Mechanical Features of Each Textbook

Table 45 on pages 153 and 154 shows the mechanical features and the format of the twenty-one textbooks analyzed. The information in Column 3 was obtained from Table 44. The information in Columns 7 and 8 was kindly supplied by the publishers.

Reading Table 45 from left to right, it can be seen that in Practical Mathematics, the length of the line is $3 \frac{5}{8}$ inches, that there are 28 lines per page, and 348 pages in the entire text, that the linear space is equivalent to 35,322 inches, that the point size of type is 12-point type, and the style of type is "Times Roman."

The total linear space was determined by multiplying the length of the line in inches by the number of lines per page, and then by the total number of pages in the text. The total number of pages in the text includes the glossary, the

as the equivalent of the printed lines that it would contain in order to establish a total linear space constant factor for each text.

The preface, the glossary, the appendix, and the index were not included in the total linear word space since they were given separate consideration under "Supplementary Material" on pages Ten full pages of print were considered in the estimation of the total word space for each book.

The Mechanical Features of Each Textbook

Table 15 on pages 153 and 154 shows the mechanical features and the format of the twenty-one textbooks analyzed. The information in Column 3 was obtained from Table 14. The information in Columns 7 and 8 was kindly supplied by the publishers.

Reading Table 15 from left to right, it can be seen that in Practical Mathematics, the length of the line is $3\frac{5}{8}$ inches, that there are 33 lines per page, and 348 pages in the entire text, that the linear space is equivalent to 35,322 inches, that the point size of type is 12-point type, and the style of type is "Times Roman."

The total linear space was determined by multiplying the length of the line in inches by the number of lines per page, and then by the total number of pages in the text. The total number of pages in the text includes the glossary, the

Table 45. Mechanical Features and the Format, Length of Line, Number of Lines Per Page, Total Number of Pages, Linear Space in Printed Portion, Color of Cover, Point Size of Type, Style of Type.

Text-Book	Length of Line	Number of Lines Per Page	Total Number of Pages	Linear Space in Printed Portion (in inches)	Color of Cover	Point Size of Type	Size of Type
1.	3-5/8"	28	348	35,322	Green	12 Point Type	Times Roman Leaded 2 Point
2.	4-1/8"	40	491	81,015	Red	12 Point Type	Mono. No. 157E
3.	4"	32	282	36,096	Tan	10 Point Type	Century
4.	4-3/8"	31	317	42,995	Blue	Text 11 Point on 12	^{3.} Century School Book
5.	4"	31	301	37,324	Brown	Throughout #98	^{4.} Bookman Monotype
6.	4"	33	285	37,620	Green	Text 11 Point Type	^{5.} Leaded 2 Points. #36 Scotch #8 Modern
7.	4"	34	344	46,784	Red	11 Point on 12	Century Leaded 2 Pts. Monotype
8.	3-13/16"	36	443	60,801	Aqua	11 Point Type	Century Expanded Type Leaded 2 Pts. Monotype
9.	3-13/16"	34	452	58,581	Maroon	11 Point Type	Century Expanded Type Modern, 2 Pt. Leaded
10.	3-13/16"	32	459	55,998	Maroon	Text-Monotype #8 11 Point	Antique 2 Pt. Leaded
11.	4"	34	426	57,936	Green	11 Point Type	^{1.} Leaded 2 Point #175 Bodoni
12.	3-13/16"	32	381	46,482	Gray- Blue	11 Point on 13 Point	Baskerville
13.	4"	37	435	64,380	Gray- Green	11 Point Type	Century School Book
14.	4"	32	509	65,152	Brown	11 Point Type	Century
15.	4"	31	451	55,924	Blue	12 Point on 14	Century
16.	4"	33	285	37,620	Burned Umber	11 Point type	Century
17.	4-5/16"	33	350	49,809	Light Green	12 Point type	Leaded 2 pt. #20 Century expanded
18.	4"	33	396	52,272	Blue	10 Point type	Century School Book
19.	4"	33	412	54,384	Burned Orange	11 Point type	Monotype Century
20.	3-13/16"	33	450	56,616	Rose	10 Point on 12 No. 25 11 Point #76	Leaded 2 Point ^{2.}
21.	4"	34	333	45,288	Purple	11 Point #420	Century School Book

1. Exercises; 10 Point type; Leaded 2 Point #175 Bodoni
2. Size of type used for illustrative examples definitions, etc.
3. Headings 12 point; Boldface caslon, Numbers, 10 point; Cushing, tractions, Piece Fractions; "How to do" material, 12 point, Cushing
4. Figures #149; Boldface titles "boldface" #86
5. Footnotes 8 point on 9; Index 7 Point on 9
6. Exercises, Monotype #8, 10 Point Modern 2 Point Leaded Boxed Pages, Monotype #25, 9 Point (Antique, 2 Point Leaded)

appendix, and the index.

All the textbooks are bound in cloth covers, and all texts contain dull finished pages in accordance with the best standards for textbooks.

Survey: Table 46 on the following pages gives a survey of the twenty-one mathematics textbooks for grade eight analyzed in this study. The purpose of this table is to compare the supplementary or unrelated material found in these textbooks. It shows the date of publication, foreword, preface, introduction, to the teacher, to the eighth grade boys and girls, table of contents, number of pages of actual text, the appendix, glossary, index, answers, and the total number of pages for each text.

Reading from left to right, the table shows that Textbook I was published in 1942, with no pages for the foreword, six pages for the preface, no pages for the introduction, no pages for the teacher, no pages for the eighth grade boys and girls, two pages for the Table of Contents, 274 pages to the actual text, 62 pages to the appendix, no pages to the glossary, 4 pages to the index, no pages for the answers to tests, and 348 pages for the total number of pages to the book. By reading the columns vertically, a comparison can be made as to the number of pages given to the same kind of material. All the other texts may be compared in the same way.

appendix, and the index.

All the textbooks are bound in cloth covers, and all
texts contain full finished pages in accordance with the best
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of the twenty-one mathematics textbooks for grade eight
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these textbooks. It shows the date of publication, fore-
word, preface, introduction, to the teacher, to the eighth
grade boys and girls, table of contents, number of pages of
actual text, the appendix, glossary, index, answers, and the
total number of pages for each text.

Reading from left to right, the table shows that Text-
book I was published in 1948, with no pages for the fore-
word, six pages for the preface, no pages for the introduc-
tion, no pages for the teacher, no pages for the eighth
grade boys and girls, two pages for the Table of Contents,
274 pages for the actual text, 42 pages for the appendix, no
pages for the glossary, 4 pages for the index, no pages for
the answers to tests, and 348 pages for the total number of
pages in the book. By reading the columns vertically, a
comparison can be made as to the number of pages given to the
same kind of material. All the other texts may be compared
in the same way.

Table 46. Date of Publication, the Number of Pages of the Actual Text, the Supplementary Material, and the Total Number of Pages.

Textbook	Date of Pub- lication	Foreword	Preface	Intro- duction	To the Teacher	Table of Contents	Appendix	Glossary	Index	Answers	Total No. of Pages
1.	1942	0	6	0	0	2	62	0	4	0	348
2.	1945	0	2	6	2	3	10	0	4	0	491
3.	1939	5	1	0	0	4	8	0	4	0	282
4.	1942	0	0	4	0	1	15	0	4	0	317
5.	1937	0	2	0	0	4	3	0	8	0	301
6.	1937	2	0	0	2	4	8	0	4	0	285
7.	1940	0	0	0	5	6	2	0	8	0	344
8.	1940	0	3	0	0	1	2	0	3	0	443
9.	1940	0	3	0	0	1	2	0	4	0	452
10.	1948	2	0	2	0	1	49	0	4	0	502
11.	1937	0	2	0	0	3	2	0	5	27	426
12.	1942	0	2	11	0	1	8	0	6	0	381
13.	1939	0	2	0	0	5	25	0	4	54	435
14.	1946	0	0	0	0	1	58	0	6	0	509
15.	1941	0	4	0	0	8	0	2	4	14	451
16.	1942	0	0	0	2	3	33	0	6	0	285
17.	1946	1	0	0	0	1	16	0	5	0	350
18.	1938	0	0	4	0	4	41	0	3	0	396
19.	1944	0	5	0	0	5	36	0	6	0	412
20.	1935	0	4	0	0	1	2	0	3	29	450
21.	1947	0	2	0	0	5	5	0	10	0	333

Supplementary Material Compared: Table 47 on the following page is an outgrowth of Table 46 and shows the amount of space devoted to the supplementary material in each text. That is, the foreword, preface, introduction, to the teacher, to the eighth grade boys and girls, table of contents, appendix, glossary, index, and answers. The total number of pages devoted for supplementary material in each text was found by adding the columns vertically, and then finding the mean for each text. The total number of pages devoted to each topic in the twenty-one texts was found by adding the columns horizontally. The average number of pages devoted to each topic was found by dividing the total number of pages for each topic by 21.

Interpretation: It can be seen from Table 47 that the greatest number of pages of supplementary material was devoted to the appendix - a total of 347 pages. Textbook 1 ranked highest in this respect, with 62 pages accorded its appendix; Textbook 14 came next with 48 pages, and Textbook 18, third, with 41 pages to its appendix.

A study of the vertical columns reveals that Textbook 13 contained the greatest number of supplementary pages, but that the answers to tests and the appendix comprised most of these 90 pages. Textbook 1, with 64 pages, followed second in the greatest number of supplementary pages, and Textbook 14 third - with 65 pages.

Supplementary Material Compared: Table IV on the follow-

ing page is an outgrowth of Table IV and shows the amount of space devoted to the supplementary material in each text. That is, the foreword, preface, introduction, to the teacher, to the eighth grade boys and girls, table of contents, appendix, glossary, index, and answers. The total number of pages devoted for supplementary material in each text was found by adding the columns vertically, and then finding the mean for each text. The total number of pages devoted to each topic in the twenty-one texts was found by adding the columns horizontally. The average number of pages devoted to each topic was found by dividing the total number of pages for each topic by 21.

Interpretation: It can be seen from Table IV that the

greatest number of pages of supplementary material was devoted to the appendix - a total of 347 pages. Textbook I ranked highest in this respect, with 62 pages accorded its appendix; Textbook II came next with 46 pages, and Textbook III, third, with 41 pages to its appendix.

A study of the vertical columns reveals that Textbook I contained the greatest number of supplementary pages, but that the answers to tests and the appendix comprised most of these 90 pages. Textbook I, with 64 pages, followed second in the greatest number of supplementary pages, and Textbook II third - with 62 pages.

Table 47.

Supplementary Material Compared
The Number of Pages Devoted to the Supplementary Material

Supplementary Material	Textbook																					Total No. of Pages	Ave- rage
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.		
Foreword	0	0	5	0	0	2	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	10	.5
Preface	6	2	1	0	2	0	0	3	3	0	2	2	2	0	4	0	0	0	5	4	2	38	1.8
Introduction	0	6	0	4	0	0	0	0	0	3	0	11	0	0	0	0	0	4	0	0	0	28	1.3
To the Teacher	0	2	0	0	0	2	5	0	0	0	0	0	0	0	0	0	2	0	0	0	0	11	.5
To the Eighth Grade Boys and Girls	9	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	.05
Table of Contents	2	3	4	1	4	4	6	1	1	1	3	1	5	1	8	3	1	4	5	1	5	64	3.04
Appendix	62	10	8	15	3	8	2	2	2	9	2	8	25	58	0	33	16	41	36	2	5	347	16.5
Glossary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	.1
Index	4	4	4	4	8	4	8	3	4	4	5	6	4	6	4	6	5	3	6	3	10	105	5.0
Answers	0	0	0	0	0	0	0	0	0	0	27	0	54	0	14	0	0	0	0	0	29	124	5.9

Total

74	27	22	24	17	21	21	9	10	19	39	28	90	65	32	44	23	52	52	39	22	-	730	34.8
----	----	----	----	----	----	----	---	----	----	----	----	----	----	----	----	----	----	----	----	----	---	-----	------

Mean

74	2.7	22	24	1.7	2.1	2.1	.9	1.0	1.9	3.9	2.8	9.0	6.5	3.2	4.4	2.3	5.2	5.2	3.9	2.2			
----	-----	----	----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	--	--	--

Only one book - Textbook 6 - provided a page addressed specifically to the eighth grade boys and girls. A glossary was found in only one textbook - namely, Textbook 15. Thirteen books contained a preface; 5 books an introduction; 4 books, to the teacher; 4 books provided answers to the tests and exercises within the book. All twenty-one textbooks contained a Table of Contents and an Index. A grand total of 730 pages was accorded the supplementary material - an average of 34.8 pages of supplementary material per book. No one book contained all the items listed under the supplementary material column.

Modern Trends in Junior High School Mathematics: For many years there has been a continuous debate in the country as to the best desirable program for grades seven, eight, and nine. Recently there has been organized a Joint Commission under the auspices of the National Council of Teachers of Mathematics, and American Mathematical Association which will attempt to clarify the situation by the preparation of a detailed syllabus which is to give more adequate attention to the matter of grade placement.

William Fols, a Specialist in mathematics for the public schools of Rochester, New York, and an ardent supporter in the country, and for a new point of view in mathematics, states emphatically the definite modern objective in teaching mathematics as follows: "It is that of emphasizing the subject on the basis of fundamental and permanent human needs, and of

Only one book - Textbook 5 - provided a page addressed specifically to the eighth grade boys and girls. A glossary was found in only one textbook - namely, Textbook 12. Thirty-two books contained a preface; 5 books an introduction; 4 books, to the teacher; 4 books provided answers to the tests and exercises within the book. All twenty-one textbooks contained a Table of Contents and an Index. A grand total of 730 pages was recorded the supplementary material - an average of 34.8 pages of supplementary material per book. No one book contained all the items listed under the supplementary material column.

CHAPTER III

Integration of Textbooks

The Purpose of This Chapter. It is the purpose of this chapter to show the integration of the contents found in the twenty-one mathematics textbooks used in this study and to present the modern points of view with respect to the teaching of junior high school mathematics and the needs of eighth grade mathematics. The summary and conclusion are also included in this chapter.

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William Betz, a specialist in mathematics for the public schools of Rochester, New York, and an ardent supporter in the current trend for a new point of view in mathematics, states poignantly the definite modern objective in teaching mathematics as follows: "It is that of anchoring the subject on the bedrock of fundamental and permanent human needs, and of

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linking all the mathematical topics as clearly as possible with life situations."¹

Betz says:²

"To modernize mathematics, teaching means at least three things: (1) To discard obsolete mathematical terms, namely those which are no longer used today; (2) to include those crucially important items without which the pupil would get a wrong idea as to the real meaning of mathematics; and (3) to teach and to apply these basic materials in such a way that the real significance of mathematics in the modern world is appreciated by the average pupil."

The great demand in the field of mathematics today, more than before, is for a continuous integrated program. In his address before the American Mathematical Society, in 1902, Professor E. H. Moore, of the University of Chicago,³ stated that our American schools will never succeed in doing a good job in mathematics unless we give up our piecemeal procedures, our compartment system of one year of algebra and one year of geometry, and offer instead a really integrated course that extends over several years, as do all the other leading nations.

Professor A. N. Whitehead of Harvard states the matter clearly when he writes:

"There is only one subject-matter for education, and that is Life in all its manifestations.

¹Betz, William. What Should Be the Mathematics Program For Grades 7, 8, and 9? c. 1936, p. 7.

²Op. cit., p. 6.

³This address was reprinted in The First Yearbook of the Council of Teachers of Mathematics, 1926, pp. 32-57.

linking all the mathematical topics as clearly as possible with life situations.¹

Bates says:²

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¹Best, William. What Should Be the Mathematics Program for Grades 7, 8, and 9? c. 1930, p. 1.

²Op. cit., p. 6.

³This address was reprinted in The First Yearbook of the Council of Teachers of Mathematics, 1930, pp. 32-37.

Instead of this single unity, we offer children --
 a year of Algebra, from which nothing follows;
 a year of Geometry, from which nothing follows;
 Science, from which nothing follows; History, from
 which nothing follows; a Couple of Languages, never
 mastered; and lastly, most dreary of all, Literature,
 represented by plays of Shakespeare, with
 philological notes and short analyses of plot and
 character to be in substance committed to memory.
 Can such a list be said to represent Life, as it
 is known in the midst of the living of it?"¹

To keep pace with the modern trend, W. D. Reeve,² of Teachers College, Columbia University, suggests that the following be omitted from our arithmetic instruction:

(1) Much of the work in common fractions is of no practical use any longer, and is discouraging, meaningless, and unnecessarily difficult for children. In many cases difficulties can be avoided by replacing the common fraction by a decimal as in the formula $F = 1.8c - 32$. David Eugene Smith once said, "Meeting a common fraction is like meeting a ghost at night. Turn on the light and the light is a decimal fraction."

(2) A great deal of the work with decimals should be omitted including addition and subtraction of "ragged decimals" and the useless cases in multiplication and division which still persist.

(3) Such parts of work in denominate numbers as are no

¹ Whitehead, A. N., The Aims of Education and Other Essays, The Macmillan Company, New York, 1929, p. 10.

² Reeve, W. D., "Modern Trends in Mathematics Education," School Science and Mathematics, January, 1948, Vol. XXXVIII, pp. 21-33.

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longer used - certainly not more than two denominations as in 2'5".

(4) Square and cube roots except by the use of tables.

(5) Such extended computations as have no applications with the child's range of knowledge. This includes difficult and discouraging work in the mechanics of multiplication and division, which operations are now practically done by calculating machines.

Mr. Reeve¹ offers positive suggestions in the replacing of the above material by such topics which are in keeping with our times. These include:

(1) Applications to school and home life, with problems actually brought in by the class.

(2) Applications to the social and civic life of the class. (Cooking, cost of gas or electricity, cost of heat, and the like.)

(3) The use of simple algebra.

(4) Informal geometry as a part of arithmetic from grade seven on.

(5) The question of taxation - a problem which touches every home in America.

In conclusion, Mr. Reeve writes: "All is concerned with the blending of arithmetic and elementary algebra. The failure to realize that there is no definite boundary between

¹
Op. cit., pp. 21-32.

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In conclusion, Mr. Reeve writes: "All is concerned with

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the two, is a relic of two centuries ago."¹

Another authority in the field, Anthony Marino, states that:

"Arithmetic courses for the seventh and eighth grades should provide pupils with training that will be valuable and essential whether they continue their work in school or are obliged to begin active service in the community. Arithmetic must be taught as a system of ideas to be mastered by insight and meaningful applications."²

From the above samplings of opinion by noted authorities in the field, it is obvious that the new program in mathematics for grades seven and eight cannot be limited to the conventional topics of arithmetic alone. Quoting Mr. Betz:³

"Due attention must also be given to the key concepts and figures of geometry, to their construction, their measurement, and their properties and relationships. Again, a beginning must be made in dealing with the shorthand of algebra in meaningful situations that stress functional thinking."

Integration of Topics: An examination of Table 48 on the following page will show to what degree the contents of each text are integrated with respect to the twenty-five topics used in this analysis - and which are listed in the left hand column of this table. The information in Table 48 is compiled from the totals columns in Tables 1, 3, 5, 7, 9,

¹ Op. cit., p. 33.

² Marino, Anthony, "Mathematics For the Non-Academic Student," The Mathematics Teacher, May, 1949, Vol. XXXIX, pp. 229-235.

³ Op. cit., p. 11.

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Integration of Topics: An examination of Table 18 on

the following page will show to what degree the contents of each text are integrated with respect to the twenty-five topics used in this analysis - and which are listed in the left hand column of this table. The information in Table 18 is compiled from the totals columns in Tables 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

¹Op. cit., p. 33.

²Marino, Anthony, "Mathematics For the Non-Academic Student," The Mathematics Teacher, May, 1949, Vol. XXIX, pp. 229-232.

³Op. cit., p. 11.

Table 48. Distribution of Topics Compared.

Topics	Textbooks*								Textbooks*													Totals
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	
Whole Numbers	711	465	272	539	256	729	196	755	740	907	177	301	294	646	841	203	557	788	685	201	1088	11351
Fractions	291	794	117	721	642	118	269	946	1077	807	206	423	380	1046	628	852	623	442	316	317	1350	11367
Decimals	213	218	135	605	470	102	181	623	553	663	140	208	302	675	324	490	482	268	215	254	395	7516
Denominate Numbers	90	160	43	2	69	36	63	109	65	105	82	206	303	341	11	80	210	177	9	69	137	2367
Percentage	82	327	64	550	301	225	247	872	654	639	205	361	370	562	162	624	591	573	689	500	222	10220
Business Transactions	31	0	49	89	203	242	192	375	276	320	29	123	169	230	276	224	124	184	207	213	56	3622
Graphs	53	68	99	87	100	21	8	98	55	94	71	32	27	49	66	24	10	19	42	49	46	1118
Insurance	229	76	140	137	63	47	133	41	44	16	93	101	97	115	53	44	53	128	48	131	67	1855
Interest and Banking	127	171	114	139	73	8	282	128	238	191	173	275	274	280	232	169	142	106	0	414	34	3570
Investments	4	126	125	183	175	99	175	1	105	9	116	143	138	55	4	86	134	206	41	201	84	2211
Problems of the Home	173	5	45	54	23	74	88	52	142	117	0	121	21	170	83	147	93	29	55	79	162	1833
Taxes	49	64	107	148	90	90	168	68	13	4	98	264	190	112	0	57	87	92	30	112	51	1794
Angles	24	40	0	7	0	0	20	67	18	42	0	82	12	51	113	0	38	11	75	20	22	542
Area	46	88	79	140	145	90	84	102	117	178	331	85	152	165	102	46	181	51	51	122	77	2432
Construction and Measurement	97	276	150	85	162	115	75	165	104	167	37	157	119	141	207	29	82	126	141	28	80	2543
Geometric Figures	36	0	24	86	35	3	132	59	67	17	21	10	80	60	101	0	50	29	26	26	71	933
Perimeter	12	37	36	49	57	23	29	46	44	82	10	53	49	30	52	13	46	15	25	22	39	769
Volume	0	84	192	140	131	35	85	91	80	40	189	88	184	118	48	52	96	126	122	216	42	2159
Congruence and Similarity	0	118	0	18	4	0	23	0	70	0	12	33	19	62	19	1	7	53	41	45	21	546
Ratio and Proportion	36	223	69	96	122	68	63	0	93	99	419	134	263	104	0	94	150	51	112	132	36	2364
Right Triangle	0	48	0	53	62	8	25	0	0	0	111	30	31	40	0	30	15	21	70	61	0	605
Scale Drawing	3	77	1	28	24	10	22	51	42	30	1	5	9	45	0	6	15	4	64	9	5	451
Square Root	15	47	162	90	62	95	78	12	0	28	158	101	83	87	12	41	43	114	96	111	91	1526
Equations	197	478	143	153	93	95	181	0	0	37	509	411	457	145	273	113	205	695	240	504	184	5113
Formulas	87	307	33	52	46	21	29	24	71	56	330	52	167	3	35	41	39	145	113	119	41	1791

*Refer to key on the following page for the name of the textbooks represented by the above numbers.

Textbooks

Table

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

711	882	272	332	282	222	132	102	102	102
231	784	117	721	242	112	222	242	242	242
212	212	122	202	470	102	181	222	222	222
90	180	42	2	722	22	22	102	102	102
22	227	24	220	201	222	247	272	272	272

Questions
Answers
Exercises
Problems
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Diagrams
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Definitions
References
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21	21	0	22	202	242	102	272	272	272
22	22	22	22	202	21	2	22	22	22
222	22	22	22	22	22	22	22	22	22
127	171	124	122	122	122	122	122	122	122
2	122	122	122	122	122	122	122	122	122
172	2	22	22	22	22	22	22	22	22
22	22	22	22	22	22	22	22	22	22

Tables
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Index
Diagrams
Problems
Exercises
Answers
Questions

24	24	24	24	24	24	24	24	24	24
24	24	24	24	24	24	24	24	24	24
24	24	24	24	24	24	24	24	24	24
24	24	24	24	24	24	24	24	24	24
24	24	24	24	24	24	24	24	24	24
24	24	24	24	24	24	24	24	24	24
24	24	24	24	24	24	24	24	24	24
24	24	24	24	24	24	24	24	24	24
24	24	24	24	24	24	24	24	24	24
24	24	24	24	24	24	24	24	24	24

Tables
Formulas
Definitions
References
Index
Diagrams
Problems
Exercises
Answers
Questions

0	112	0	12	12	12	12	12	12	12
22	222	22	22	22	22	22	22	22	22
0	22	0	22	22	22	22	22	22	22
2	22	1	22	22	22	22	22	22	22
12	22	22	22	22	22	22	22	22	22

Tables
Formulas

22	22	22	22	22	22	22	22	22	22
22	22	22	22	22	22	22	22	22	22
22	22	22	22	22	22	22	22	22	22
22	22	22	22	22	22	22	22	22	22
22	22	22	22	22	22	22	22	22	22

Key to Names of Textbooks

1. Practical Mathematics
2. Everyday Junior Mathematics
3. Real-Life Arithmetic
4. Arithmetic We Use
5. Champion Arithmetics
6. The Master Key Arithmetic
7. Iroquois New Standard Arithmetic
8. Junior Mathematics
9. Mathematics For Today
10. The New Mathematics, First Course
11. Mathematics Through Experience
12. The New Trend Arithmetic
13. Mathematics in Action
14. Mathematics and Life
15. Mathematics At Your Service
16. Learning Arithmetic
17. Making Sure of Arithmetic
18. Junior Life Mathematics
19. Fundamental Mathematics
20. Practical Junior Mathematics
21. Functional Numbers

Key to Names of Textbooks

1. Practical Mathematics
2. Everyday Junior Mathematics
3. Real-Life Arithmetic
4. Arithmetic We Use
5. Champion Arithmetic
6. The Master Key Arithmetic
7. Irodoulos New Standard Arithmetic
8. Junior Mathematics
9. Mathematics For Today
10. The New Mathematics, First Course
11. Mathematics Through Experience
12. The New Trend Arithmetic
13. Mathematics in Action
14. Mathematics and Life
15. Mathematics At Your Service
16. Learning Arithmetic
17. Making Sure of Arithmetic
18. Junior Life Mathematics
19. Fundamental Mathematics
20. Practical Junior Mathematics
21. Functional Numbers

11, etc., through Table 43. Each figure represents the total number of examples and problems dealing with the respective topic under which it is found. Thus, reading Column 18, from top to bottom, in Table 46, it can be seen that there are 788 problems and examples dealing with whole numbers; 442 problems and examples dealing with fractions; 268 problems and examples dealing with decimals; 177 with denominate numbers; 573 with percentage, and so on through the length of the column.

The textbooks representing the highest degree of integration are not necessarily those having the greatest sum totals of problems and examples but rather those texts in which all topics (listed at the left in the table) are represented. Therefore, those texts showing the highest degree of integration are, in the order of descent: (1) Mathematics in Action; (2) Mathematics and Life; (3) The New Trend Arithmetic; (4) Practical Junior Mathematics; (5) Fundamental Mathematics; (6) Junior-Life Mathematics; and (7) Making Sure of Arithmetic.

Summary: A study of twenty-one mathematics textbooks has been made (1) to determine the distribution of topics in each textbook and the word space allotted to each textbook; (2) to list the different kinds of illustrations which each textbook contains; (3) to analyze each textbook as to the number of examples and problems in tests and in exercises

11, etc., through Table 13. Each figure represents the total number of examples and problems dealing with the respective topic under which it is found. Thus, reading Column 13, from top to bottom, in Table 13, it can be seen that there are 738 problems and examples dealing with whole numbers; 442 problems and examples dealing with fractions; 268 problems and examples dealing with decimals; 177 with denominate numbers; 273 with percentages, and so on through the length of the column.

The textbooks representing the highest degree of integration are not necessarily those having the greatest sum of topics of problems and examples but rather those texts in which all topics (listed at the left in the table) are represented. Therefore, those texts showing the highest degree of integration are, in the order of descent: (1) Mathematics in Action; (2) Mathematics and Life; (3) The New Trend in Arithmetic; (4) Practical Junior Mathematics; (5) Fundamental Mathematics; (6) Junior-High Mathematics; and (7) Making Sure of Arithmetic.

Summary: A study of twenty-one mathematics textbooks has been made (1) to determine the distribution of topics in each textbook and the word space allotted to each textbook; (2) to list the different kinds of illustrations which each textbook contains; (3) to analyze each textbook as to the number of examples and problems in texts and in exercises

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other than in tests; (4) to compare the various types of instructional aids supplementary to the text; (5) and to determine the method employed by the authors in writing the text and their plan of arrangement and organization of subject matter. Since the interpretation of the above material is considered in detail throughout the text of this study, only the more general interpretations are included in the Summary.

(1) There is no agreement among the authors as to the specific sequence of topics, as an examination of Tables 2, 4, 6, 8, etc. through Table 42 will reveal.

(2) Illustrative material is extensively used by all authors. There was no attempt on the part of the writer to evaluate the texts on the basis of the number of illustrations included within a given text.

(3) More space is allocated to the study and practice of fundamentals than to any other topic as a study of tables 3, 5, 7, 8, 11, etc. through Table 43 will reveal to the reader.

(4) The variety of material supplementary to the texts is at the present time limited. Of the twenty-one textbooks analyzed, eighteen have answer books, twelve have a Teacher's Manual, and eight have workbooks.

(5) The authors were divided as to their choice of method in presenting the materials of their texts. Ten texts were written according to the unit plan and eleven according to the traditional chapter method.

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considered in detail throughout the text of this study, only the more general interpretations are included in the Summary.

(1) There is no agreement among the authors as to the specific sequence of topics, as an examination of Tables 2, 4, 6, 8, etc. through Table 12 will reveal.

(2) Illustrative material is extensively used by all authors. There was no attempt on the part of the writer to evaluate the texts on the basis of the number of illustrations included within a given text.

(3) More space is allocated to the study and practice of fundamentals than to any other topic as a study of Tables 3, 5, 7, 9, 11, etc. through Table 13 will reveal to the reader.

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(6) The allotment of space to the various topics differed according to the authors. However, the seven major phases of arithmetic taught in grade eight are included by all authors - some to a greater or lesser degree than others.

(7) The number of units or chapters devoted to each text varies to some extent. Although most of the texts contain from ten to twelve chapters, Champion Arithmetics contains four chapters and Mathematics At Your Service contains twenty-one chapters.

(8) Authors of most of the textbooks mention in the preface or introduction of their respective text as having considered the findings of important investigations of grade placement of arithmetic topics, and as having made extensive surveys of their own to determine the most satisfactory points at which to present the various elements of work.

(9) Provision is made for individual differences through diagnostic tests, remedial practices, supplementary problems and examples, and gradation of topics.

(10) All authors emphatically stress in their preface or introduction the need for integration of topics taught to problems in everyday living.

(11) There is an integration of the topics taught to the actual problems in life, and an integration of all topics within a given book. However, the degree of integration varies.

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Conclusion. It may be concluded from this study that the authors of the twenty-one textbooks analyzed recognize the needs of the eighth grade pupil in relation to our modern way of life. Consequently, in an attempt to meet these needs, the twenty-one texts analyzed were written, based on scientific methods of study and research as well as through actual experiences in the classrooms of the country and with an emphasis on arithmetic as applied in everyday, real life situations.

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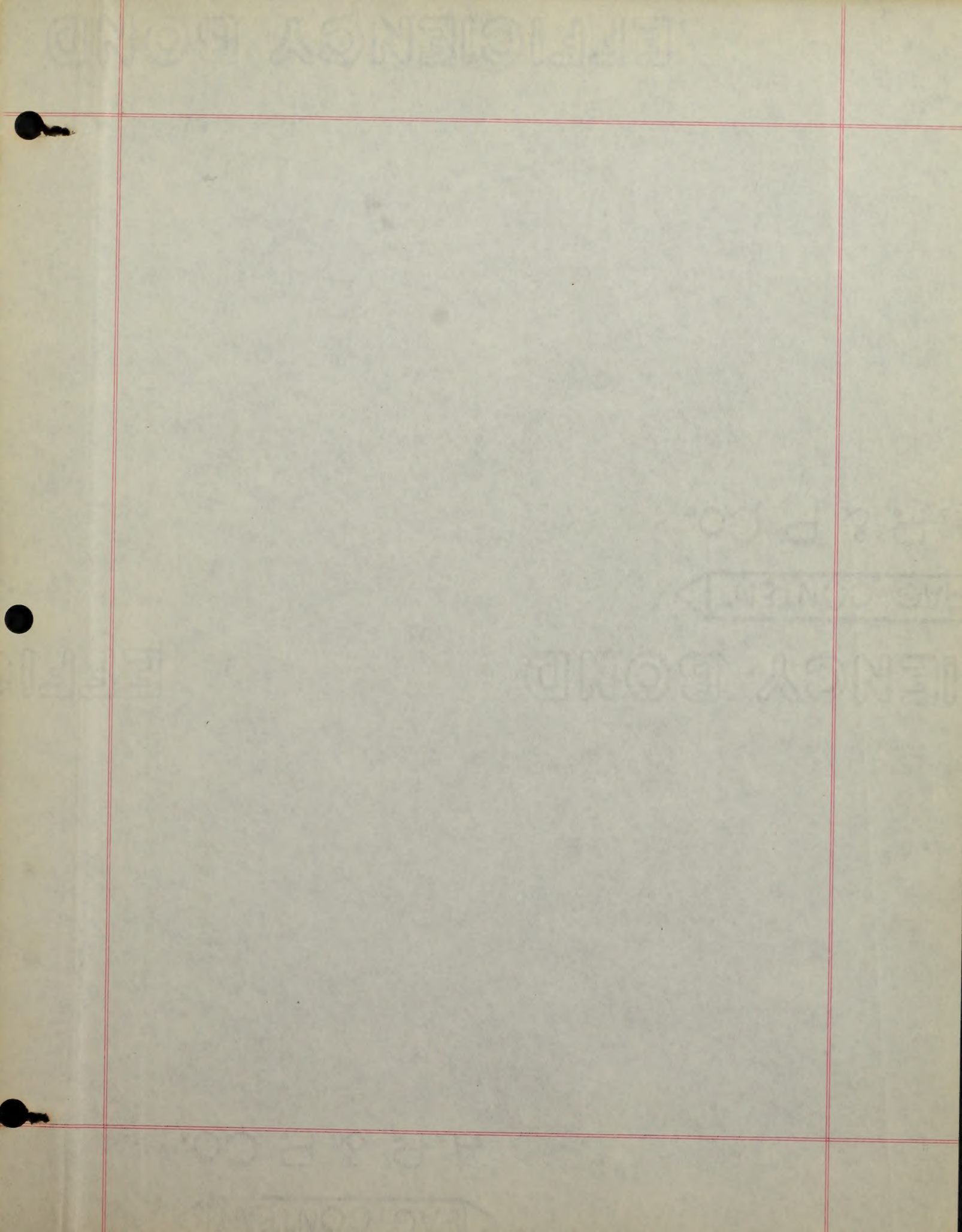
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